

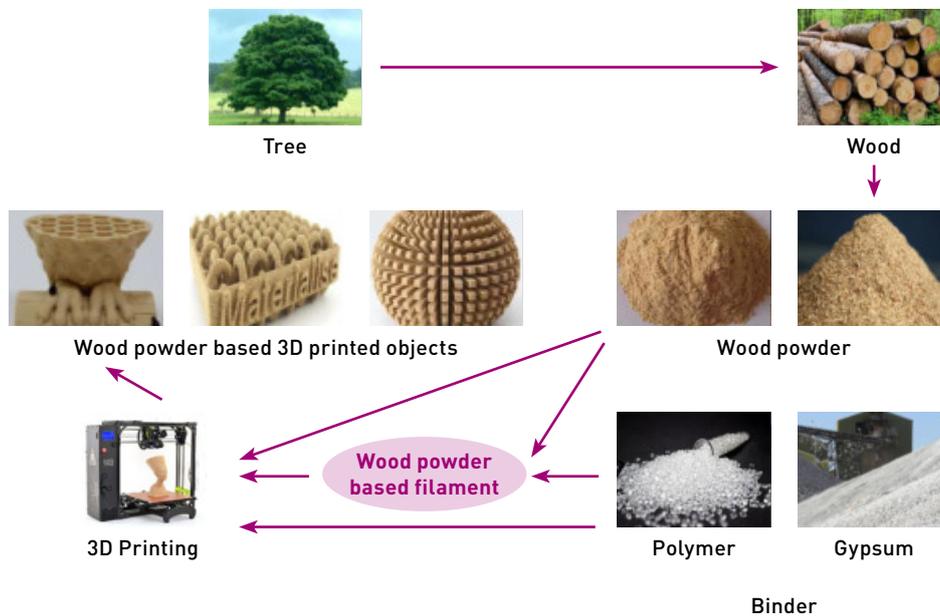
OBJETIVOS DE DESARROLLO SOSTENIBLE



BOLETÍN BIOENERGÍA Y BIOPRODUCTOS

Material de impresión 3D a partir de Biomasa: Patentes

La impresión tridimensional (3D), también conocida como fabricación aditiva, posibilita la creación de objetos en tres dimensiones al superponer capas sucesivas de material, a partir de un diseño digital. Aunque esta tecnología, concebida en los inicios de los años 80, comenzó siendo una técnica de desarrollo lento y costoso, ha evolucionado considerablemente gracias a los avances tecnológicos. En la actualidad, las impresoras 3D son más accesibles y eficientes que nunca. Con el tiempo, estas tecnologías han diversificado sus aplicaciones, encontrando utilidad en sectores como el sanitario, aeronáutico, automoción, moda y calzado, construcción, joyería y alimentación, entre otros.



Fuente: Kumar Das, A. et al. Journal of Material Research and Technology, 15, 2021

Hoy en día, existe una amplia variedad de materiales y tecnologías para la impresión 3D. Entre los materiales disponibles se encuentran metales, cerámica, arena y hormigón, pero, sin lugar a duda, los materiales plásticos son los más utilizados. Existen diferentes tecnologías de impresión 3D que utilizan los materiales plásticos como materia prima, siendo las más comunes las siguientes:

- Impresoras 3D de modelado por deposición fundida (FDM): Estas máquinas construyen piezas derritiendo y extruyendo un filamento termoplástico que un extrusor deposita capa por capa en el área de impresión.
- Impresoras 3D de estereolitografía (SLA): Utilizan un láser para curar resinas líquidas termoendurecibles y transformarlas en plástico endurecido, en un proceso conocido como fotopolimerización.
- Impresoras 3D de sinterizado selectivo por láser (SLS): Emplean un láser de alta potencia para fundir pequeñas partículas de polvo de termoplástico.

La mayoría de los plásticos utilizados son sintéticos y provienen de derivados del petróleo. Por lo tanto, es esencial buscar materiales de impresión alternativos que conserven o mejoren las propiedades de los productos, reduzcan coste y sean respetuosos con el medioambiente. En este contexto, el ácido poliláctico (PLA) ha ido ganando terreno y popularidad en la industria de la impresión 3D. El PLA se produce a partir de fuentes vegetales, como la caña de azúcar o el almidón de maíz. Esto lo convierte en una opción más sostenible.

En la actualidad, en el mercado se encuentran diversos materiales que combinan una base de PLA con partículas obtenidas de biomasa o residuos de alimentos, bebidas, y más. Estos materiales incluyen filamentos fabricados a partir de materiales como bambú, corcho, madera, conchas de moluscos (mejillones y ostras), residuos de café y cerveza, entre otros. Además, se están realizando investigaciones sobre la utilización de algas y polímeros, como la celulosa, hemicelulosa y lignina, en la producción de nuevos materiales.

Hasta la fecha, la lignina se ha utilizado principalmente en la impresión 3D a través de tecnologías como SLA y FDM. Por lo tanto, se ha logrado con éxito procesar poliuretano fotocurable reforzado con lignina y resinas que contienen lignina mediante SLA.

Con vistas a ofrecer una visión del grado de desarrollo de la tecnología, la Tabla 1 recoge numerosos ejemplos de documentos de patente publicados a nivel mundial relativos a nuevos materiales de impresión 3D obtenidos a partir de biomasa. Haciendo doble click en el número de publicación puede accederse al texto completo en espacenet donde se describe detalladamente cada una de las invenciones.

Tabla 1. Documentos de patente

Nº Publicación	Solicitante (País)	Título
KR102384729B1 2022-04-11	Ahn Sung Jin (Corea del Sur)	3D printer filament manufacturing method using food residues and 3D printer filament manufactured thereby
KR20220094798A 2022-07-06	Aekyung Chemical Co Ltd (Corea del Sur)	15- 3D Photo curable resin composition for 3D printing comprising biomass-derived 15-pentamethylenediisocyanate-isocyanurate acrylate
EP4019577A1	Carboganic (Bélgica)	Large-scale additive manufacturing materials comprising pyrolyzed lignocellulosic filler
RO133561B1 2022-04-29	Cardinal SRL (Rumania)	Composition and process for preparing polylactic acid with improved thermal behaviour for 3D printing
CN115491007A 2022-12-20	Dongguan Polytechnic (China)	Rice hull powder reinforced polylactic acid 3D printing wire and preparation method thereof
CN115726054A 2023-03-03	Fujian Xinghai Comm Technology Co Ltd (China)	Preparation method of cellulose HDPE (High-Density Polyethylene) composite material filaments
WO2022229558A1 2022-11-03	Green Gen Tech (Francia)	Method for manufacturing a material from grape residues and vine residues for the production of objects
EP4137285A2 2023-03-01	Grupa Azoty SA (Polonia)	Method for preparing a biodegradable polymeric composition comprising thermoplastic starch and a synthetic biodegradable polymer
CN114058167A 2022-02-18	Hangzhou Kewan New Material Tech Co Ltd (China)	Nanocellulose modified pecan shell micro powder/thermoplastic material composite 3D printing consumable and preparation method thereof
CN115572124A 2023-01-06	Harbin Inst Technology (China)	3D printing straw concrete material and preparation method thereof
EP4063102A1 2022-09-28	Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (Francia)	Method of additive manufacturing by hot-extrusion
RO135836A2 2022-06-30	Institutul Nat de Cercetare Dezvoltare Pentru Chimie si Petrochimie (Rumania)	Composition for increasing polylactic acid flexibility by stereo complexation, to be used in 3D printing
KR20220075757A 2022-06-08	Jeilchemical Corporation Ltd (Corea del Sur)	3D method for manufacturing biomass-based epoxy acrylate oligimer and photocurable resin composition for 3D printing using the same
CN115490483A 2022-12-20	Jiangsu Zhifangge Intelligent Robot Tech Co Ltd (China)	Printing ink material for 3D printing building and preparation method of printing ink material
WO2023088239A1 2023-05-25	Kingfa Sci &Tech Co Ltd (China)	Flame-retardant high-toughness PLA alloy material, and preparation method therefor and use thereof
US2022135803A1 2022-05-05	Klemmt Christoph (EE.UU.)	Material composition for 3D-printing of plant-based fibers
KR20220021048A 2022-02-22	Kyungpook Nat Univ Ind Academic Coop Found et al. (Corea del Sur)	3D 3D Bioink and 3D printing method for 3D bio printing including microfibrillated cellulose and guar gum and uses thereof
KR 20220096560 A 2022-07-07	Kyungpook Nat Univ Ind Academic Coop Found (Corea del Sur)	3D Bioink and 3D printing method for 3D bio printing including microfibrillated cellulose and Locust bean gum and uses thereof
US2023011081A1 2023-01-12	Korea Inst Sci & Tech et al. (Corea del Sur)	Cellulose composite material, 3D printing material and 3D printing structure including the same, and method of manufacturing the 3D printing structure using the same
KR102383350B1 2022-04-11	Kyungpook Nat Univ Ind Academic Coop Found (Corea del Sur)	3D 3D Method for manufacturing filament for 3D printing and filament for 3D printing manufactured by the same
WO2022045967A1 2022-03-03	Nat Univ Singapore et al. (Singapur)	Hydrogels and methods of fabrication thereof

Nº Publicación	Solicitante (País)	Título
WO 2023280821A1 2023-01-12	Nippon Kornmeyer Carbon Group GmbH (Alemania)	Process for producing moulded articles from carbon or graphite by 3D printing
WO2022186601A1 2022-09-09	Research & Business Foundation Sungkyunkwan Univ (Corea del Sur)	Polylactic acid-lignin composite material for 3D printing and preparation method therefor
WO2023281031A1 2023-01-12	Roquette Freres (Francia)	Starch based printable materials
CN114634630A 2022-06-17	South China Agriculture Univ (China)	Modified camellia oleifera shell powder and polylactic acid filled 3D printing material and preparation method thereof
WO2022223861A1 2022-10-27	Univ Cádiz et al. (España)	Supercritical impregnation of pharmacologically active products in polylactic acid (PLA) filaments suitable for use in 3D printing
WO2023285714A1 2023-01-19	Univ Cádiz (España)	Photocurable composite material made of shredded straw from cereal crops for use in stereolithography, and production method thereof
WO2023023577A1 2023-02-23	Univ California (EE.UU.)	Additive manufacturing of tunable polymeric 3D architectures for multifunctional applications
CN115105630A 2022-09-27	Univ Chizhou (China)	3D printing material embedded with chitosan/gelatin composite hydrogel and preparation method thereof
US 2022002199 A1 2022-01-06	Univ Columbia (EE.UU.)	Nanomaterial and cellulosic rheology modifiers for 3D concrete printing
CN114605795A 2022-06-10	Univ Dalian Maritime (China)	Preparation method of biochar polylactic acid composite 3D printing material
WO 2022266428A1 2022-12-22	Univ Florida (EE.UU.)	3D-printable shear-thinning polysaccharide-based nanocomposite hydrogel for biomimetic tissue engineering
WO 2023062239A1 2023-04-20	Univ Freiburg Albert Ludwigs (Alemania)	Compositions comprising modified lignin useful for additive manufacturing
FR 3119713 A1 2022-08-12	Univ Grenoble Alpes et al. (Francia)	Composition for manufacturing an electrode, associated electrode and method
CN114350117A 2022-04-15	Univ Jiangsu (China)	Nano fibril cellulose reinforced photocuring 3D printing composite material and preparation method thereof
CN114426915A 2022-05-03	Univ Nanjing Agricultural (China)	Mushroom brick 3D printer and use method thereof
CN115531598A 2022-12-30	Univ Nanjing Agricultural (China)	3D printing hydroxy selaginose cellulose aerogel as well as preparation method and application of 3D printing hydroxy selaginose cellulose aerogel
CN115181397A 2022-10-14	Univ Nanjing Forestry (China)	High-strength and high-toughness thermosetting resin composite material capable of 3D printing as well as preparation method and application thereof
CN115736236A 2023-03-07	Univ Northwest A&F Et Al. (China)	Application of radio frequency modified starch in preparation of special raw material for 3D printing
CN114890759A 2022-08-12	Univ Qingdao Agricultural (China)	3D printing light material containing wood aggregate as well as preparation method and application of 3D printing light material
CN114196043A 2022-03-18	Univ South China Science & Tech (China)	High-water-absorption starch hydrogel based on 3D printing technology as well as preparation method and application of high-water-absorption starch hydrogel
CN114191601A 2022-03-18	Univ South China Science & Tech (China)	Starch gel hemostatic material based on 3D printing technology and preparation method and application thereof
CN115281915A 2022-11-04	Wang Tinghong (China)	Composite 3D printing material based on orthopedic external fixation brace and preparation method of composite 3D printing material
CN114161705A 2022-03-11	Wood Industry Res Institute of Chinese Forestry Science Res Institute (China)	3D printing forming and post-processing method of wood fiber biomass material
US2023130097A1 2023-04-27	Xerox Corp (EE.UU.)	Polymer particles comprising lignin and related additive manufacturing methods

PATENTES BIOENERGÍA

Biocombustibles sólidos (pellets, biochars, bio RDFs, bio SRFs, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023126394 A1 20230706	Europeenne de Biomasse (FR)	Exploiting a contaminated lignin-rich material by incorporating same into a biomass before the step of steam cracking in the production of fuel pellets. The present invention relates to the field of exploiting lignocellulosic biomass, in particular to produce black pellets having a high calorific value. More specifically, the invention relates to a method for exploiting industrial lignin. This method makes it possible to produce black pellets and comprises a step of incorporating a material rich in lignin or a lignocellulosic material, which is loaded with unwanted elements, into the biomass before the steam cracking step.
WO 2023175934 A1 20230921	Chugoku Electric Power (JP)	Method for producing solid biomass fuel. Provided is a method for producing a solid biomass fuel, in which a favorable formability is obtained even when the water content of a waste fungus bed is low. The method for producing the solid biomass fuel uses waste fungus beds as a raw material, said method comprising a crushing step for crushing the waste fungus beds so that waste fungus beds having a particle diameter of 2.9 mm or less become 90% or more on a weight basis. It is preferable that the waste fungus beds contain corn cobs, and that a first classification step for classifying waste fungus beds having a particle diameter of more than 2.9 mm is further provided prior to the crushing step.
WO 2023119875 A1 20230629	Idemitsu Kosan Co (JP) et al.	Method for producing solid biomass fuel. A method for producing a solid biomass fuel which comprises a step in which biomass is subjected to steam explosion to obtain exploded biomass, a post-washing step in which the exploded biomass is washed after the steam explosion, a drying step in which the washed exploded biomass is dried, a step in which the dried exploded biomass is molded to obtain biomass pellets, and a pellet-heating step in which the biomass pellets are heated at 180°C or higher for five minutes or longer.
EP 4215615 A1 20230726	Pieti Pauli (FI)	Fireplace intended for solid fuels with multi-fuel device arranged into its burning place. A fireplace intended for solid fuels, into the burning space of which fireplace is arranged a multi-fuel device for burning several solid fuels, such as chopped wood, briquettes or biomasses, said multi-fuel device comprising a grate pair which consists of a bottom grate and a top grate, a burning cylinder, a perforated cylinder, a fire tube and a control system for conducting primary and secondary air into burning. The grate pair is adjustable and the perforated cylinder is replaceable when changing the used fuel into another one and the multi-fuel device is located at least for its most part below the bottom-edge level of a fireplace door.
WO 2023120230 A1 20230629	Sanyo Chemical Ind Ltd (JP)	Fluidity improving agent for solid fuel or for steel raw material. The present invention provides a fluidity improving agent for a solid fuel or for a steel raw material, the fluidity improving agent satisfying (1) and (2) and containing a crosslinked polymer (A) comprising, as essential constituent monomers, a water-soluble vinyl monomer (a1) and/or a vinyl monomer (a2) that becomes (a1) through hydrolysis, and a crosslinking agent (b). According to the present invention, the fluidity improving agent that can improve the fluidity of a solid fuel or a steel raw material without impairing production efficiency and yield can be provided, and a method for modifying the fluidity of a solid fuel or a steel raw material in order to improve the fluidity of the solid fuel or steel raw material without impairing production efficiency and yield can be provided. (1) Gel modulus of elasticity: 1.5-2.5 kN/m ² (2) Water retention amount: greater than 320 g/g and equal to or less than 700 g/g.
WO 2023176481 A1 20230921	Toyo Boseki (JP)	Masterbatch pellets. [Problem] To provide an environmentally friendly polyolefin resin film roll which, as a product, fluctuates little in biomass ratio, has few defects, and thereby gives packaging materials with a low reject rate. [Solution] Masterbatch pellets comprising: a propylene homopolymer and/or a propylene/a-olefin random copolymer; and plant-derived, linear, low-density polyethylene.
WO 2023156710 A1 20230824	UPM Kymmene Corp (FI)	Lignin pellets. A method for producing lignin pellets is disclosed. The lignin pellets comprise lignin in an amount of 90 - 99.99 weight-% based on the total weight of the lignin pellets. The method comprises providing a lignin powder; mixing an additive with the lignin powder to provide a mixed lignin powder, subjecting the mixed lignin powder to a pelletizing treatment to provide lignin pellets, wherein the lignin pellets have a diameter of 2.5 - 8 mm. Further is disclosed a lignin pellet, a product, and the use of the lignin pellet.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023140766 A1 20230727	Valmet OY (SE)	Method and system for processing biomass material. A method for processing biomass material comprising washing the biomass material in one or more washing stages, feeding the washed biomass material to at least one pressurized reactor, thermally treating the biomass material at elevated pressure and temperature by means of adding steam to the at least one reactor, discharging the biomass material and blow steam from the at least one reactor by means of steam explosion discharge, separating the blow steam from the discharged thermally treated biomass material, condensing at least part of the separated blow steam to obtain an acidic condensate, and recirculating at least a portion of said acidic condensate to at least one of the washing stages. A corresponding system is also provided.

Syngas

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023139421 A1 20230727	Ariunbat Tserendash (MN)	Complex device and method for pyrolysis of organic raw materials and organic wastes. The purpose of the present invention is to pyrolyze and gasify organic raw materials and organic wastes by a complex device, in result to obtain only gases without liquid and solid by-products. The complex device is designed and developed like 2 steps combined with 2 reactors in one housing with continuous processing. Raw feeding materials are pyrolyzed in the medium temperature fast pyrolysis turbine reactor then continuously in the high-temperature flash pyrolysis cylindrical reactor, resulting in very high conversion of gasification reaction in a short resident time. Raw material oiled solid residue from previous processing, and gas mixture from the hopper container are continuously entered into the medium temperature fast pyrolysis turbine reactor through its inlet. There is no clogging of organic materials problem when raw material is fed by the tubular chain conveyor into the reactor which is a big challenge of current pyrolyzing technology. The following chemical and physical processes happen simultaneously in the reactor: • Fast pyrolysis reaction will occur when raw materials are dropping into the reactor at a temperature of 350-600oC, • Solid raw materials impurities will expand differently when the raw materials are dropping into the reactor at a temperature of 350-600oC in result the solid material becomes brittle which hits by flat blade turbine with the rotation speed of 1000-2500 rpm, in result, the raw materials become fine particles at the same time occurred fast pyrolysis process, • All products except ash of the reactor at a temperature of 350-600oC flow into the high-temperature flash pyrolysis cylindrical reactor at a temperature of 800-900oC in which whirled and gasification reaction is completed. • The tubular chain conveyor runs without an outside tube in the combined reactor because of this any stuck materials on the tubular chain conveyor are completely reacted and cleaned. The solid powder residues in the products of the cylindrical reactor are absorbed by the oil. The continuous motion tubular chain conveyor is cooled down by oil then picks the oiled solid powder residue to add to the feeding material. Conclusions Continuous complex device and method for pyrolysis of organic raw materials and organic wastes process a wide range size of 1-30 mm feeding materials with high gas production, high reaction conversion, fewer by-products, and high economic efficiency. The inventor designed and developed a prototype of this complex device of the 10th generation of ABBAT-10 and tested. The prototype was a small dimension that can fit in a 20-ton container, but with high production of 60-86 t/ day and its continuous working hours were 7000 hours.
EP 4212606 A1 20230719	Commissariat Energie Atomique (FR)	Biomass gasification process. Gasification process comprising the following steps: a) bringing balls made of steel, alloy, glass or ceramic into contact in a main reactor, at a temperature between 600°C and 1000°C, with a mixture to be treated comprising water and a biomass, the biomass comprising an organic part and salts, the main reactor pressurized to more than 224 bars and at a temperature greater than 200°C b) gasify the organic part in the presence beads, whereby a gas phase, an aqueous phase and a solid residue are formed, and whereby the salts precipitate on the beads, forming a shell of salts covering the beads, c) separate the balls of the organic part, d) regenerate the balls.
WO 2023128769 A1 20230706	Inrigo AS (NO)	Method and device for pyrolysis-based production of hydrocarbon oils based on plastic containing raw material. A method and reactor assembly for pyrolysis-based production of hydrocarbon oils from a first plastic raw material, comprising optionally combining the plastic raw material with a second raw material selected from the group consisting of a hydrocarbon containing raw material selected among crumb rubber and wood chunks in an amount constituting more than 15 % by weight of the combined raw material adding a catalyst to the combined raw materials to thereby form a reaction composition, charging the reaction composition through an airlock valve to an auger pyrolysis reactor comprising at least two auger reactors heated to a temperature in the range 450 – 550 °C, diverting oil vapours and non-condensable vapours from the auger reactors to a condensing device, condensing in two steps a heavy oil fraction and a light oil fraction from said vapours.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023135114 A1 20230720	Torrgas Tech BV (NL)	Process to prepare synthesis gas. The invention is directed to a process to prepare synthesis gas from a solid torrefied biomass feed comprising the following steps: (a)subjecting the solid torrefied biomass to a mild gasification in a reactor to obtain a gaseous fraction comprising hydrogen, carbon monoxide and a mixture of gaseous organic compounds and a solid char, (b) separating the gaseous fraction from the solid char, (c) transferring the gaseous fraction via a transfer conduit and wherein oxygen is added to the gaseous fraction as it is transferred such that the temperature of the gaseous fraction in the transfer conduit is maintained above condensation temperature of hydrocarbons preferably above 450 °C, and (d) subjecting the gaseous fraction to a partial oxidation in the partial oxidation reactor to obtain the synthesis gas.

Biogás

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023147905 A1 20230810	Biogasclean AS (DK)	Method and apparatus for biological production of electro-methane. The present invention relates to a method and apparatus for converting carbon monoxide and/or carbon dioxide and hydrogen in a gas to methane and water. The gas comprising carbon monoxide and/or carbon dioxide is preferably a biogas, fluegas or syngas. The gas comprising hydrogen is preferably a gas obtained from electrolysis of water. The method and apparatus comprises an efficient cleaning of the packaging material without removing the packaging material from the reactor. Hereby, the efficiency of the conversion is maintained and optimised. In particular, the present invention relates to increasing the amount of green energy obtained from anaerobic digestion of an organic material by reducing the content of carbon dioxide and increase the content of methane in a gas.
WO 2023122677 A1 20230629	Black & Veatch Holding Co (US)	Integrated waste reduction system. A waste reduction system that utilizes organic solids suspended in a waste stream to produce carboxylic acids, which can then be employed as an input to a microbial fuel cell or other biological processes to further enhance biogas production, is provided. The organic waste stream influent undergoes a multistage fermentation process in which fermentative microorganism metabolize the organic waste materials and produce one or more carboxylic acids, especially short chain fatty acids. The carboxylic acids serve as a food source for bacteria within an anode compartment of an MFC that generates useable electricity therefrom.
EP 4209285 A1 20230712	CR Evolution SRL (IT)	Plant and method for the regeneration of spent bleaching sands/earths and the production of biogas. The invention relates to a method and a plant for treating or regenerating spent bleaching sands/earths from a plant for the production of biofuel, in particular from the bleaching pre-treatment of feedstocks of plant origin that are used for the production of biofuels. The method comprises a first pre-treatment step in which the bleaching earths mixed with neutral water or with gummy acid water are neutralised by adding a base, preferably calcium hydroxide, in order to bring the pH to neutrality. Subsequently the neutralised bleaching earths are subjected to anaerobic digestion by a biomass comprising anaerobic bacteria. During the digestion biogas, which may optionally be subjected to purification, and a solid/liquid suspension are generated. The solid/liquid suspension is subsequently separated into a solid component comprising the bleaching earths and a liquid component comprising the digestate. The bleaching earths are then subjected to heat treatment, at a temperature between 400°C and 600°C. Then follows a reactivation of the heat-treated bleaching earths with the aid of an acid solution and drying of the regenerated earths to render them usable in a plant for the production of biofuels.
WO 2023175719 A1 20230921	Jtekt Corp (JP)	Biogas production system and method for producing biogas. A biogas production system configured so that biogas (G) can be produced from, as a raw material, a waste water-soluble coolant (C) collected from a processing device for machining or grinding. The biogas production system includes a fermentation device configured so that the waste water-soluble coolant (C) can be fermented with microorganisms to produce biogas (G). This invention further relates to a method for producing biogas (G) configured so that a waste water-soluble coolant (C) collected from a processing device for machining or grinding can be used as a raw material to yield biogas (G). The method for producing biogas (G) includes a fermentation step in which the waste water-soluble coolant (C) is fermented with microorganisms.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023171389 A1 20230914	Kubota KK (JP)	Anaerobic treatment method. Provided is an anaerobic treatment method by which it is possible to efficiently utilize, as a natural resource, harvest residue generated in an agricultural field. In this anaerobic treatment method, a raw material including harvest residue produced in an agricultural field is methane-fermented, the fermented residue produced by the methane fermentation is returned to the agricultural field, and a biogas produced by the methane fermentation is utilized as an energy source, wherein the cutting length of the harvest residue to be supplied for the methane fermentation is adjusted on the basis of demand information about the fermented residue or the biogas. In addition, if demand for the fermented residue or the biogas increases, the cutting length or average cutting length of the harvest residue to be supplied for the methane fermentation is adjusted so as to be shorter.
WO 2023153026 A1 20230817	Kurita Water Ind Ltd (JP)	Method and apparatus for anaerobic treatment of organic wastewater. Provided are an anaerobic treatment method and an anaerobic treatment apparatus, each of which is configured such that organic wastewater is subjected to a methane fermentation treatment in an anaerobic reaction vessel 1 and sludge in the anaerobic reaction vessel 1 is subjected to membrane filtration through a membrane module 4 to produce treated water, in which the membrane is subjected to alkaline washing when a converted flux decreases and reaches a predetermined value when a transmembrane pressure difference during the membrane filtration increases and reaches a predetermined value, and the membrane is subjected to acid washing when a rate of increase in a logarithmic value of the transmembrane pressure difference or a rate of decrease in a logarithmic value of the converted flux reaches a predetermined value.
WO 2023164436 A1 20230831	Novozymes AS et al. (US)	Process for producing fermentation products and biogas from starch-containing materials. The present invention concerns a process for producing fermentation products, such as ethanol, and a biogas unit, wherein a yield enhancing composition comprising at least one, at least two, at least three, at least four, or at least five different types of enzymes and/or at least one, at least two, at least three, at least four, or at least five different microorganisms is added to the whole stillage that is fed to the slurring step and/or the biogas unit, outflow of the biogas unit before being mashed in the slurring step; thin stillage that is fed to the slurring step, residual materials resulting from purification of the oil and/or of the protein product that are fed to the biogas unit, wet cake that is fed to the slurring step and/or fed to the biogas unit, added to the biogas unit, and/or biomass added to any one of the preceding steps.
WO 2023158339 A1 20230824	Ostrovkin Ilya Moiseevich (RU)	Degassing a landfill site by ejection. The invention relates to the field of environmental protection, and more particularly to a method for removing biogas from the body of a landfill site. Degassing a landfill site consists in installing drainage pipes into the body of a landfill and connecting one end of the drainage pipes to a header pipe. Said header pipe is installed on the surface of the landfill with its air inlet and outlet ends situated in horizontal planes at different heights and in communication with the atmosphere; in the regions where the drainage pipes are connected to the header pipe, ejectors are installed, active ducts of which are connected to the header pipe so that atmospheric air is able to enter said ducts by natural draught or by forced draft. Passive ducts of the ejectors are positioned in the drainage pipes so as to be capable of sucking in biogases, which are entrained into the header pipe by flows of air. The resulting air-gas mixture exits from the upper end of the header pipe into the atmosphere. The invention provides an increase in the operational reliability and efficiency of systems for degassing full, decommissioned landfills, while simplifying the structure of said devices.
WO 2023172146 A1 20230914	Raaheims Energy Consulting (NO)	Method and device for anaerobic production of biogas. Method and device for production of biogas in an anaerobic digester with inherent separation of CO ₂ or CO ₂ rich gas from the methane produced. A digestate is discharged from the digester and directed to an extraction facility in which at least the nutrients nitrogen and phosphorus are extracted and directed to a nutrient preparation unit in a flow, while the raw biogas from the digester is subjected to desulphurization and subsequent CO ₂ separation in a separation unit from which CO ₂ is directed to the nutrient preparation unit for combination with the nitrogen and phosphorus to a nutrition base flow for subsequent use as nutrition, e.g. in an algae production plant.

Bioalcoholes (bioetanol, biometanol, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
US 2023279446 A1 20230907	Hydrite Chemical Co (US)	Method for controlling microbial growth in an ethanol fermentation system. A method for controlling microbial growth in an ethanol fermentation system is disclosed wherein the method comprises: (a) adding a biocide including a peroxy acid (e.g., peracetic acid) into a fermentable medium, wherein the biocide is essentially free of chelating agents; and (b) fermenting the fermentable medium with yeast to produce a fermented medium including ethanol. The method may further comprise: (c) distilling the fermented medium to separate at least a portion of the ethanol from solids in the fermented medium; and (d) producing a distillers grain product from the solids. By using a biocide essentially free of chelating agents, the method does not introduce undesirable chelating compounds into the co-product non-fermentable solids of ethanol production that are processed into distillers grain products.
US 2023285979 A1 20230914	Lee Tech LLC (US)	System and method for improving the corn wet mill and dry mill process. This novel corn milling process includes a continuous steeping step, early separation of easy-to-access starch (e.g., starch in the floury endosperm part of a corn kernel), fine milling to secure germ protein without the use of solvents or heat, and performing a phase separation to collect the product of fermentation. The continuous steeping process uses a continuous steeping tank. The steeping liquid, which includes probiotics, flows in from the bottom of the tank in a countercurrent flow. Other features include efficiently producing high purity starch or sugar using the starch in the floury endosperm of the corn kernel, producing alcohols such as ethanol and butanol that can be used as sustainable aviation fuel or feedstock for sustainable aviation fuel, and producing a high protein animal feed product that includes yeast and germ protein without using toxic solvents.
WO 2023159251 A1 20230824	Novozymes AS (DK)	Method for carrying out the combined operation of a bioethanol production unit and a biogas unit. The present invention concerns a method for carrying out the combined operation of a bioethanol production unit and a biogas unit, wherein a yield enhancing composition is added to the whole stillage that is fed to the mashing step or the biogas unit, the outflow of the biogas unit, the thin stillage that is fed to the mashing step, added to the residual materials resulting from purification of the corn oil or protein product that are fed to the biogas unit, the wet cake that is fed to the mashing step or the biogas unit; and/or biomass added to any one of the preceding steps.
WO 2023137333 A1 20230720	Synata Bio Inc (US)	Methods for efficient fermentation broth recycle. Disclosed are methods for efficient fermentation broth recycle, methods for improving bottoms recycle, and methods for converting CO, CO ₂ , and optionally H ₂ to ethanol and other oxygenated products, the methods comprising providing to a bioreactor a gaseous substrate comprising CO, CO ₂ , and optionally H ₂ , at least one acetogenic carboxydophilic bacterium, and a liquid nutrient medium, and providing conditions within the bioreactor for the at least one acetogenic carboxydophilic bacterium to convert CO, CO ₂ , and optionally H ₂ to at least one oxygenated product. Also disclosed are methods for preparing animal feed and for preparing fertilizer.
MX 2020004028 A 2020114	Univ Popular Autonoma del Estado de Puebla (MX)	Method for producing ethanol from vinase enriched with separate cellulose from multilayer packaging. The present invention has managed to obtain a product with high added value from two residues that are very frequent, abundant, and highly polluting, such as multilayer containers and stillage. In this situation, this invention reports multiple benefits in different technological areas; On the one hand, it allows reusing, and thus revaluing, multilayer packaging waste and waste from the alcohol production industry, that is, stillages, which have a great beneficial environmental impact. Also, it allows bioethanol to be obtained, with a high-quality standard, from waste products, which prevents the bioethanol production industry from consuming agricultural grains, such as corn, sorghum, etc., preventing the costs of these inputs increase. Additionally, polyethylene and aluminum are also revalued for reuse, with the consequent environmental and economic benefits.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116355967 A 20230630	Univ Southwest Forestry (CN)	Method for improving enzymolysis saccharification efficiency and ethanol yield of wood fiber raw material. The invention discloses a method for improving enzymolysis saccharification efficiency and ethanol yield of a wood fiber raw material, which comprises the following steps: pretreating the wood fiber raw material with peroxycitric acid to remove lignin, and then carrying out enzymolysis saccharification and sugar solution microbial fermentation to prepare cellulosic ethanol, thereby achieving the purposes of improving the enzymolysis saccharification efficiency and ethanol yield. According to the method, lignin components in the wood fiber biomass cell wall structure can be effectively removed, cellulose and hemicellulose components are reserved, then the subsequent glycosyl compound and ethanol fermentation efficiency can be improved, experimental results show that the yields of glucose, xylose and ethanol are all remarkably improved, and the method is suitable for industrial production. The method has the characteristics of low acid consumption, mild reaction conditions and high conversion efficiency of cellulose and hemicellulose, and the used peroxycitric acid has low volatility and corrosivity; the method is a green method for orderly splitting the biomass cell wall structure, and is suitable for industrial production and market popularization and application.
US 2023265374 A1 20230824	Univ United Arab Emirates (AE)	Membrane bioreactor for simultaneous enzymatic cellulose hydrolysis and product separation. The membrane bioreactor for simultaneous enzymatic cellulose hydrolysis and product separation is a vessel having a lower hydrolysis reaction chamber and an upper distilled water chamber separated by a semipermeable membrane attached to the top of the lower reaction chamber. The membrane is supported on a stainless steel mesh and sealed to the mesh by epoxy glue to prevent leakage. A peristaltic pump is connected to the reaction chamber and maintains a flow of distilled water through the membrane and the upper chamber, the effluent being collected in a beaker or other product collection vessel. The reaction chamber is agitated at a moderate rate by a magnetic stirrer, and the upper chamber is agitated more rigorously by a mechanical stirrer. A thermocouple and temperature controller and a buffer solution, respectively, maintain temperature and pH in the reaction chamber optimal for enzymatic hydrolysis of cellulose.
US 2023227861 A1 20230720	Wisconsin Alumni Res Foundation Warf (US)	Gene duplications for Crabtree-Warburg-like aerobic xylose fermentation. An engineered yeast strain capable of efficient fermentation of xylose to ethanol, and methods of making and using the strain, are provided.
MY 193111 A 20220926	Xyleco Inc (US)	Processing materials. Biomass feedstocks (e.g., plant biomass, animal biomass, and municipal waste biomass) are processed to produce useful products, such as fuels. For example, systems are described that can convert feedstock materials to a sugar solution, which can then be fermented to produce ethanol. Biomass feedstock is saccharified in a vessel by operation of a jet mixer (144), the vessel also containing a liquid medium and a saccharifying agent.
JP 2022058406 A 20220412	-	Mutant genes participating in improvement of ethanol productivity in ethanol fermentation by a yeast having xylose-metabolizing ability and methods of ethanol production using the same. To provide mutant genes participating in improvement of ethanol productivity in ethanol fermentation by a yeast having xylose-metabolizing ability and methods of ethanol production using the same. SOLUTION: The invention provides a mutant gene encoding a mutant SUI3 protein having a consensus sequence in which an amino acid residue at specific position in a specific amino acid sequence is substituted by other amino acids, a mutant xylose-metabolizing yeast having the mutant gene, and a method for producing ethanol comprising a step of culturing the mutant xylose-metabolizing yeast in a xylose-containing culture medium to conduct ethanol fermentation.

Biodiésel

Nº Publicación	Solicitante (País)	Contenido técnico
MX 2020011486 A 20220502	Centro de Investig y Desarrollo Tecnológico en Electroquímicas C (MX)	Biodiesel production system using ultrasonic cavitation. According to the present invention, the method for producing fatty acid esters from high-acid fatty acids uses a one-step reaction process compared to the conventional two-step processes, thereby significantly shortening the process time, improving productivity and enabling commercialization, and at the same time being used in the reaction. By recovering some of the catalyst, waste generation can be reduced and catalyst usage can be reduced.
WO 2023120912 A1 20230629	Korea Institute of Petroleum Man (KR)	Method for producing bio-diesel using animal lipids and removing sulfur. An embodiment of the present invention provides a method for producing bio-diesel, the method comprising the steps of: mixing animal lipids, a solvent, and a catalyst in a reactor to cause an esterification reaction, and producing a crude bio-diesel; removing the solvent from the crude bio-diesel through first vacuum distillation; removing glycerol from the crude bio-diesel through layer separation; removing the catalyst from the crude bio-diesel by washing with water; and removing a sulfur component from the crude bio-diesel from which the solvent, the glycerol, and the catalyst have been removed, through second vacuum distillation, and producing a high-purity bio-diesel.
KR 20230122738 A 20230822	LC Green Tech Co Ltd (KR)	Method for producing biodiesel using waste oil and biodiesel produced thereby. The method for producing biodiesel using waste oil according to the present invention includes a waste oil reactor input and heating step (S100) of preparing waste oil, adding it to a reactor, and heating the waste oil; A water mixing step (S200) of mixing water with the heated waste oil to produce a waste oil reactant; A decomposition agent addition and heating step (S300) of adding a decomposition agent to the water-mixed waste oil reaction product and then heating it; A heating stop and cooling step (S400) of heating the water-mixed waste oil reactant by adding a decomposition agent and then cooling it by stopping heating in the reactor; A reaction residue primary discharge step (S500) of removing reaction residues present in the reactor by first discharging them to the outside of the reactor; An electrolyte addition step (S600) of adding water to the product remaining after the reaction residue is first discharged, maintaining the temperature at a constant temperature, and reacting by adding more electrolyte to the product to which water has been added; and a reaction residue secondary discharge step (S700) in which pretreated waste oil is obtained by removing the reaction residue present in the reactor by secondary discharge to the outside of the reactor after the electrolyte is added and reacted. According to the above-described structure, the method for producing biodiesel using waste oil according to the present invention is to perform a pretreatment process on animal or vegetable waste oil and produce biodiesel using the pretreated waste oil, thereby removing various impurities and unsaturation contained in the waste oil. Fatty products, etc. can be effectively removed and excellent quality biodiesel can be produced.
KR 20230103492 A1 20230707	New Energy Res & Development Inc (KR)	Micro reactor for producing bio-diesel. The present invention distributes alcohol through a plurality of alcohol distribution ports formed on a first circumference, and maintains oil through a plurality of alcohol distribution ports formed corresponding to the plurality of alcohol distribution ports on a second circumference defined outside the first circumference. A distribution port forming portion distributing through the holding dispensing port, disposed above the distributing port forming portion, each between an alcohol inflow end at a position corresponding to the alcohol dispensing port and a holding inlet end at a position corresponding to the holding dispensing port. A first reaction flow path forming part formed with a plurality of first reaction flow paths connecting the first reaction flow path forming part, and disposed on an upper side of the first reaction flow path forming part, and a plurality of reactant guide holes are connected to the alcohol inflow end of each of the first reaction flow paths and the A reactant guide port forming portion formed at a position corresponding to a predetermined mixing point between the holding inflow ends and guiding the reactants upward, and disposed on an upper side of the reactant guide port forming portion and flowing in through the plurality of reactant guide ports. It includes a second reaction flow path forming portion that forms a second reaction flow path that guides the reactants.
WO 2023116170 A1 20230629	Petrochina Co Ltd (CN)	Method for preparing biodiesel by means of reaction and extraction, and biodiesel. A method for preparing biodiesel by means of a reaction and extraction, and the biodiesel. The method comprises: subjecting animal and plant grease and a monohydric fatty alcohol or a carbonic ester thereof to an esterification reaction and/ or a transesterification reaction under the condition that a catalyst is added or not added, and simultaneously extracting water generated by the reaction by using a polar extractant during the reaction process. The method for preparing the biodiesel by means of a reaction and extraction has the advantages of a short technological process, a simple process, a low cost, a high acid value adaptability of a grease raw material, etc., and can also realize the efficient preparation of the biodiesel.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116355690 A 20230630	Shandong Yike Chemical Co Ltd (CN)	Biodiesel raw material pretreatment process. The invention discloses a biodiesel raw material pretreatment process which comprises the following steps: mixing acidified oil and catering waste animal and plant grease in different proportions according to early-stage detection indexes; and preheating, washing for the first time, centrifuging for the first time, washing for the second time, centrifuging for the second time, alkali refining, centrifuging for the third time, washing for the third time, centrifuging for the fourth time, washing for the fourth time, centrifuging for the fifth time, drying, decolorizing, filtering, deodorizing and cooling to obtain finished grease. After the raw materials are pretreated by adopting the process, moisture and volatile matters are completely removed, the nitrogen and sulfur contents can be reduced by half, the phosphorus content is reduced by 90%, and heavy metals are reduced to 5ppm or below; the feeding requirement of a biodiesel hydrogenation device is met.
KR 20230125930 A 20230829	UIF Univ Industry Foundation Yonsei Univ et al. (KR)	Producing method of fatty acid methyl/ethyl ester biofuel from high percentage free fatty acid. The present invention relates to a process for producing fatty acid esters (biofuels) from high-acid fatty acids. In particular, high-acid fatty acids are a mixture of free fatty acids whose acidity is increased by oxidation of vegetable oil, animal oil, or fat with water and unoxidized fatty acids. It relates to a method for producing fatty acid esters from.
CN 116355699 A 20230630	Univ Zhejiang Technology et al. (CN)	Method for preparing biodiesel by catalyzing waste oil and fat with zinc glycerate. The invention discloses a method for preparing biodiesel by catalyzing waste grease with zinc glycerate. The method comprises the following steps: carrying out pretreatment, glycerol esterification reaction, transesterification reaction and post-treatment on the raw material waste grease to obtain BD100 biodiesel; a glycerol zinc catalyst is adopted in the glycerol esterification reaction and the ester exchange reaction, the glycerol zinc catalyst reacts with free fatty acid to form fatty acid zinc, homogeneous catalysis of the glycerol esterification and ester exchange reaction process is achieved, and the fatty acid zinc reacts with glycerol in the later period of the reaction to regenerate glycerol zinc; the catalyst has the advantage of easiness in separation of a heterogeneous catalyst and the characteristic of high efficiency of a homogeneous catalyst. Based on the amphoteric catalysis characteristic of the zinc glycerate, the conversion characteristic of the zinc glycerate and the fatty acid zinc is ingeniously combined, the glycerol esterification reaction and the ester exchange reaction of the waste oil and fat are coupled, the homogeneous catalysis reaction process and the heterogeneous separation process of the heterogeneous catalyst are achieved, and the method has the advantages of being high in reaction speed, recyclable in catalyst and the like; the method is suitable for industrial production and can be used for stably producing the BD100 biodiesel.
CN 116637725 A 20230825	-	Method for preparing a biodiesel slime collector from urban kitchen waste oil. The invention relates to a method for preparing a biodiesel slime collector from urban kitchen waste oil. It discloses a method for preparing a biodiesel slime collector by a mixed solvent esterification method of urban kitchen waste oil, which includes the following steps: (1) Direct steam heating: Directly pass saturated water vapor into the urban kitchen waste oil to heat it as a whole; (2) Trommel screen separation: Put the urban kitchen waste oil heated in step (1) into the trommel screen. In this method, solid impurities such as plastic bags and food residues in urban kitchen waste oil can be removed; (3) Selective microwave dehydration of urban kitchen waste oil treated in step (2); (4) One-step acid catalyst Pre-esterification; (5) two-step alkali catalyst esterification; (6) cooling and stratifying the esterification product in step (5), washing the supernatant liquid, and obtaining a biodiesel slime collector after distillation under reduced pressure. The invention reduces the mass transfer resistance between reactants, increases the reaction rate, and is conducive to the conversion of black energy into green energy and the realization of a dual-carbon strategy.
CN 116688971 A 20230905	-	Preparation method and application of a solid catalyst for producing biodiesel. The invention relates to a preparation method and application of a solid catalyst for producing biodiesel, and belongs to the application fields of catalytic materials and oil chemical industry. The preparation method includes the following steps: S1. Weigh a certain mass of calcium nitrate and/or hydrated calcium nitrate, zinc nitrate and/or hydrated zinc nitrate, zirconium nitrate and/or hydrated zirconium nitrate and dissolve it in deionized water to obtain a solution; S2. Add urea to the solution obtained in S1, stir and perform a hydrothermal reaction, and then dry to obtain a solid; S3. activate the solid obtained in S2 at high temperature, and then grind it to obtain a solid catalyst. Among them, the molar ratio range of raw material Zn:Ca:Zr in S1 includes (1 4):4:4 and 4:4:2. The prepared solid catalyst is an amphoteric solid catalyst with both acid and alkali functions. It has the characteristics of low component loss and wide adaptability to the content of free fatty acids in the raw oil.

Bio-jet fuels

Nº Publicación	Solicitante (País)	Contenido técnico
CN 115960639 A 20230414	China Petroleum & Chem Corp et al. (CN)	Jet fuel and preparation method thereof. The invention relates to a jet fuel and a preparation method thereof, the jet fuel comprises a biomass-based jet fuel, a petroleum-based jet fuel and an additive, the biomass-based jet fuel comprises C8-C15 paraffin, the distillation range of the biomass-based jet fuel is 140-260 DEG C, and based on the total weight of the biomass-based jet fuel, the content of components in the distillation range of 170-240 DEG C is 50-98 wt%. The jet fuel contains the biomass-based jet fuel, and compared with petroleum-based jet fuel, the biomass-based jet fuel has better thermal stability and lower sulfur and nitrogen content, so that the jet fuel disclosed by the invention is better in thermal stability and lower in sulfur and nitrogen content.
US 2023250348 A1 20230810	Exxonmobil Technology & Engineering Company (US)	Hydrocarbon composition. A jet boiling range composition is provided with an unexpected distribution of carbon chain lengths for the hydrocarbons and paraffins in the composition. The hydrocarbon composition corresponds to a jet boiling range composition that includes 40 wt % or more of hydrocarbons and/or paraffins that have carbon chain lengths of 17 carbons or 18 carbons. Additionally or alternately, the hydrocarbon composition can contain 45 wt % or less of C14-C17 hydrocarbons and/or paraffins. This unexpected distribution of carbon chain lengths in a jet boiling range composition can be achieved for a composition that has a freeze point of -40° C. or lower and a flash point of 38° C. or higher. Optionally, the jet boiling range composition can also have a T10 distillation point of 205° C. or less (such as down to 150° C.) and a final boiling point of 300° C. or less.
WO 2023154701 A1 20230817	Exxonmobil Technology & Engineering Company (US)	Renewable jet production. Systems and methods are provided for production of renewable jet fuel and/or jet fuel blending component fractions. The systems and methods provide for formation of jet boiling range fractions via hydrodeoxygenation and catalytic dewaxing of bio-derived feeds. The systems and methods for reducing or minimizing recycle and/or forming only a jet boiling range product and a lower boiling range product can be facilitated based on selection of a suitable feedstock and/or based on selection of suitable reaction conditions and catalyst for the catalytic dewaxing.
WO 2023126562 A1 20230706	Neste Oyj (FI)	A method for producing renewable gas, renewable naphtha, and renewable jet fuel. The present invention relates to a method for producing renewable gas D, renewable naphtha E, and renewable jet fuel F or components thereto from a renewable feedstock A, in particular to methods comprising separate hydrodeoxygenation (20) and hydroisomerization steps (40) wherein the hydroisomerization is performed in the presence of a metal impregnated ZSM-23 catalyst.
WO 2023126564 A1 20230706	Neste Oyj (FI)	A method for producing renewable aviation fuel. The present invention relates to a method for producing renewable aviation fuel D or components thereto from renewable feedstock A comprising separate hydrodeoxygenation (20) hydroisomerization step (40), wherein the hydroisomerization is catalysed by metal impregnated hierarchical zeolite catalyst.
CN 116328853 A 20230627	Petrochina Co Ltd (CN)	Hydrocracking catalyst and preparation method thereof. The present invention discloses a hydrocracking catalyst and a preparation method thereof, the hydrocracking catalyst comprises a carrier and an active metal, the carrier comprises a hierarchical pore SAPO-34 molecular sieve, and the hierarchical pore SAPO-34 comprises 8-25 wt% of chitosan oligosaccharide and soluble starch based on the weight of an aluminum source. The hydrocracking catalyst provided by the invention improves the conversion, mass transfer and heat transfer of wax oil macromolecular reactants and products in the hydrocracking reaction of wax oil containing macromolecules, and can improve the yield and quality of aviation kerosene in the wax oil hydrocracking process.
WO 2023115185 A1 20230629	Petroleo Brasileiro SA (BR)	Integrated method for producing long-chain linear olefins and aviation kerosene by homogeneous metathesis. The present invention relates to a method comprising a selective hydrogenation step of vegetable oil derivatives that are mixed with light olefins and conveyed to the metathesis section, wherein the renewable carbon content of the olefins and aviation biokeresene depends on the type of origin of the light olefin stream. After metathesis, the reactor effluent is conveyed to the separation and purification section, in which a 1-decene stream (99% m/m), a C11-C14 olefin stream (99% m/m) and a methyl ester or C10-C14 carboxylic acid stream are obtained and conveyed for coprocessing together with aviation kerosene of fossil origin in an existing hydroprocessing unit. An excess of light olefins is admitted at the input, and the unreacted portion is separated and returned to the metathesis section. A small amount of compounds of higher molecular weight is also formed, as a result of autometathesis reactions, which is separated and incinerated or used as fuel for furnaces or boilers to generate energy. The saturated FAME stream (stearate, palmitate and methyl) in the load can be used for coprocessing (up to acceptable levels) or commercialised in the form of biodiesel.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023134974 A1 20230720	Topsoe AS (DK)	Process for hydrotreating a liquid oil feedstock. Process and plant for hydrotreating a liquid oil feedstock stream comprising the steps of i) conducting the liquid oil feedstock stream to a stabilization step by reacting the liquid oil stream with hydrogen in the presence of a catalyst for producing a stabilized composition, and separating therefrom: a stabilized stream comprising a gas phase, and a stabilized liquid oil stream; ii) providing a main hydrodeoxygenation (HDO) step, comprising: ii)-1 conducting at least a portion of said stabilized stream comprising a gas phase, or a stabilized feed stream combining at least a portion of said stabilized stream comprising a gas phase and a portion of said stabilized liquid oil stream, to a main hydrodeoxygenation (HDO) step in a first bed active in hydrodeoxygenation (HDO), thereby producing a first main hydrotreated effluent stream; ii)-2) combining at least a portion of said stabilized liquid oil stream with said first main hydrotreated effluent stream, thereby producing a first mixed stabilized gas-liquid oil stream; ii)-3) conducting said first mixed stabilized gas-liquid oil stream to a subsequent bed active in HDO, thereby producing a main hydrotreated effluent stream.
FR 3133195 A1 20230908	Totalenergies One Tech (FR)	Procede de fabrication d'un carbureacteur a partir de charges d'origine renouvelable. The invention relates to a process for preparing a jet fuel comprising at least the steps of: a) providing fatty acid methyl esters resulting from the reaction of animal fats and/or cooking oils with methanol in a transesterification reactor, b) providing hydrocarbons of fossil origin, c) preparing a hydrocarbon feedstock containing the hydrocarbons of fossil origin provided by step b) and the fatty acid methyl esters provided by step a) in a content of at most 5 vol.% with respect to the hydrocarbon feedstock, d) subjecting the hydrocarbon feedstock prepared in step c) to a hydrotreatment and obtaining a treated hydrocarbon feedstock, e) fractionating the treated hydrocarbon feedstock obtained in step d) and recovering a kerosene fraction as a jet fuel having a final boiling point of less than or equal to 300 °C.
CN 116283464 A 20230623	Univ Sichuan Sci & Eng (CN)	Synthesis method of bridged ring hydrocarbon high-density aviation fuel. The invention discloses bridged ring hydrocarbon high-density aviation fuel and a synthesis method, and relates to the technical field of aviation fuel synthesis. An oxygen-containing precursor compound is prepared through a Robinson cyclization reaction and is obtained through a hydrodeoxygenation reaction under the catalysis of a noble metal supported catalyst; according to the method, the bridged ring hydrocarbon high-density aviation fuel is obtained with high yield by utilizing the 1, 3-dicarbonyl compound and the alpha, beta-unsaturated ketene, the density of the synthesized bridged ring hydrocarbon high-density fuel reaches 0.921 g/mL, the volume combustion heat value reaches 39.6 MJ/L, and the bridged ring hydrocarbon high-density fuel has excellent fuel performance. The invention provides a new route for synthesizing bridged ring hydrocarbon high-density aviation fuel.

Biohidrógeno

Nº Publicación	Solicitante (País)	Contenido técnico
CN 115947302 A 20230411	Beijing Hangdong Huachen Hydrogen Energy Tech Co Ltd (CN)	Technological process for preparing ultra-pure hydrogen from biomass. The invention discloses a technological process for preparing ultra-pure hydrogen from biomass. Biomass generates a large amount of mixed gas containing hydrogen, carbon monoxide, methane, carbon dioxide, hydrogen sulfide, nitrogen and other components through constant-temperature oxidation of a formula oxidizing agent in a supergravity environment, and hydrogen is separated from other gases in the mixed gas to obtain 99.99% ultrapure hydrogen. The biomass provided by the invention comprises all plant raw materials such as crop straws and fruit tree branches. The purpose of constant-temperature oxidation of biomass in the supergravity environment is to obtain a large amount of hydrogen-containing mixed gas, and carbon monoxide in the mixed gas is completely converted into hydrogen through chemical reaction. As a large amount of harmful gases such as carbon dioxide, hydrogen sulfide and inert gas nitrogen are contained and cannot be directly utilized, the carbon dioxide, hydrogen sulfide, methane and nitrogen are sequentially and cleanly separated from the mixed gas. And finally, purifying the hydrogen to 99.99% to be used as clean energy.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116284568 A 20230623	Deshi Energy Tech Group Co Ltd et al. (CN)	Compound for promoting microorganisms to produce hydrogen by utilizing waste oil reservoirs and preparation method of compound. The invention belongs to the technical field of compound synthesis, and particularly provides a compound for promoting microorganisms to produce hydrogen through waste oil reservoirs and a preparation method thereof. The compound is prepared through the following preparation method that 1, p-hydroxybenzyl alcohol, formaldehyde and triethylenetetramine react to obtain an intermediate A; (2) carrying out esterification reaction on the intermediate A and oleic acid to obtain an intermediate B; (3) reacting the intermediate B with ethylene oxide and epoxypropane to obtain an intermediate C; (4) the intermediate C and maleic anhydride are subjected to a polymerization reaction to obtain the compound, the compound can effectively improve the compatibility of an oil-water interface in a waste oil reservoir, the toxic effect on microorganisms is small, and the hydrogen production efficiency of the microorganisms capable of producing hydrogen from crude oil is improved by promoting the contact effect of the microorganisms and an oil layer.
DE 102022105359 A1 20230914	Bhyo GmbH (DE)	Process for the production of hydrogen from biomass. The invention relates to a process for the production of hydrogen from biomass (1). For this purpose, the biomass (1) is fed into a fluidized-bed reactor (2) in which the biomass is converted to a material flow (3). Solids (25) are separated in at least one cyclone (12, 13). Further solids (50) and hydrocarbons (36) are separated in a Venturi washer (14). In the biodiesel wash (15), a material flow (6) is produced which is fed to a water wash (16) and then to a separation in a cooling unit (17). In the gas fine purification (18), a material flow (9) is generated which is fed to a water gas conversion (19) and a CO ₂ removal. A material flow (11) is generated in the gas separation (20).
CN 116286095 A 20230623	China Power Conservation and Environmental Prot Co Ltd (CN)	Method and system for producing hydrogen by coupling wind-solar complementary power generation with biomass supercritical water gasification. The invention discloses a hydrogen production system which comprises an energy production unit, a raw material treatment unit and a hydrogen production unit, the energy production unit transmits wind power electric energy and photovoltaic electric energy to the hydrogen production unit, the raw material treatment unit pretreats biomass raw materials and conveys the biomass raw materials to the hydrogen production unit, and the hydrogen production unit conducts biomass supercritical water gasification hydrogen production and conducts separation and purification on hydrogen. The system provided by the invention can realize resourceful treatment of biomass, and provides a feasible path for constructing a low-cost, clean and efficient hydrogen production system and realizing a dual-carbon target.
EP 4212605 A1 20230719	Hago Druck & Medien GmbH (DE)	Process for producing hydrogen from biomass using SCWG. The present invention relates to a method for producing biogas, preferably hydrogen and carbon dioxide, from biomass, which comprises the following steps: First, an ultrasound treatment is carried out to disintegrate the biomass, the frequency of the ultrasound treatment being at least 20 kHz, followed by this the remaining biomass is heated to over 600 °C at a pressure greater than 25 MPa, in order to then finally separate the resulting gases, with the hydrogen preferably being stored at a pressure in the range of 8 to 22 MPa.
CN 115960970 A 20230414	Harbin Inst Technology (CN)	Method for producing hydrogen by fermenting human excrement. The invention provides a method for producing hydrogen through fermentation of human excrement, and relates to the technical field of biological energy sources, in particular to the method comprising the following steps: obtaining human excrement with different concentrations, adjusting pH and sterilizing, and then adding a hydrogen production seed solution for hydrogen production fermentation, or adding human excrement biochar and then adding the hydrogen production seed solution for hydrogen production fermentation. Hydrogen production is promoted through the combined action of the human excrement biochar, the human excrement and the hydrogen production seed solution, diversified resource utilization of the human excrement is achieved, and meanwhile the hydrogen production amount is increased. According to the present invention, by using the different substance composition of the human manure compared with the livestock manure, the nitrogen content in the biochar produced by pyrolysis is higher than the nitrogen content in the biochar of the livestock manure, such that the good advantage conditions are provided for the hydrogen production fermentation, the multi-stage utilization of the human manure resource is achieved, and the utilization range of the substrate required by the biological hydrogen production is broadened.
WO 2023121471 A1 20230629	Kasin Kjell Ivar (NO)	Method and apparatus for CO₂ negative production of heat and power in combination with hydrogen (CHPH). The present invention relates to a new method and apparatus for CO ₂ negative production of heat and power in combination with hydrogen (CHPH) from carbonaceous raw material using microwaves as a heating source. The invention provides an extremely energy effective and homogenous heating of biochar enabling production of hydrogen in significant amounts. The apparatus comprises several closed vessels and is suitable for H ₂ production on a small scale and locally.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023136684 A1 20230720	SK Gas Co Ltd (KR)	Method for producing dry hydrogen from sludge. A dry hydrogen production technology according to the present invention provides a clean technology for producing hydrogen from dry slurry without supplying water vapor or water, and has a low equipment load and low energy consumption, and can produce hydrogen, which is clean energy, without unnecessary harmful by-products.
CN 116286290 A 20230623	Univ Henan Agricultura (CN)	Microgroove biological membrane photosynthetic biological hydrogen production reaction system based on solar energy supply and fermentation hydrogen production process. The invention belongs to the technical field of microbial fermentation hydrogen production, and particularly relates to a microgroove biological membrane photosynthetic biological hydrogen production reaction system based on solar energy supply and a fermentation hydrogen production process. The invention provides a microgroove biological membrane photosynthetic biological hydrogen production reaction system based on solar energy supply and a fermentation hydrogen production process aiming at the problems that in the prior art, the utilization rate of waste straw is low, and meanwhile energy supply of an existing photosynthetic biological hydrogen production device needs to consume a large amount of conventional electric power energy. The microgroove biological membrane photosynthetic biological hydrogen production reaction system based on solar energy supply comprises a hydrogen production reaction unit, a cyclic heating and heat preservation unit, a photovoltaic power generation unit, a solar illumination unit and an automatic control unit. According to the invention, solar energy is used for supplying energy to the photosynthetic biological hydrogen production reaction system, and a microgroove biological membrane structure of the reactor is used, so that the metabolism degree in a microorganism light fermentation hydrogen production process is improved, the hydrogen production efficiency is improved to the greatest extent, and the hydrogen production efficiency in a light fermentation biological hydrogen production process is remarkably improved.
US 2023234843 A1 20230727	Yosemite Clean Energy LLC (US)	Systems and methods for producing carbon-negative green hydrogen and renewable natural gas from biomass waste. Methods and systems for producing carbon-negative hydrogen and renewable natural gas from biomass are included herein. In an embodiment, the method may include gasifying biomass in a gasification unit to form a first stream comprising syngas. The syngas may include methane, hydrogen, carbon dioxide, carbon monoxide, ethylene, and water. The method may also include reacting the carbon monoxide with water in the presence of a catalyst to form a second stream. The second stream may include a greater hydrogen concentration than the first stream. The method may further include separating at least a portion of the second stream to form a hydrogen stream and a natural gas stream. The hydrogen stream may have a greater concentration of hydrogen than the second stream. The natural gas stream may have a greater concentration of methane than the second stream.

Otros biocombustibles (hidrobiodiesel, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
CN 115960637 A 20230414	China Petroleum & Chem Corp Sinopec Corp Res Inst Petroleum Processing (CN)	Marine fuel oil and preparation method thereof. The invention relates to marine fuel oil and a preparation method thereof. The marine fuel oil comprises biomass-based component oil and heavy marine fuel oil, the biomass-based component oil comprises C8-C15 alkane and/or oxygen-containing compounds, the distillation range of the biomass-based component oil is 140-350 DEG C, and based on the total weight of the biomass-based component oil, the distillation range of the biomass-based component oil is 140-350 DEG C. The content of the components in the distillation range of 180-340 DEG C is 50-98 wt%. According to the present invention, the marine fuel oil contains the biomass-based component oil, and the biomass-based component oil has excellent low sulfur content and low viscosity, such that the marine fuel oil of the present invention has characteristics of low sulfur content and low viscosity, and each key index meets the RMG180 or RMG380 product standard.
WO 2023126585 A1 20230706	Neste Oyj (FI)	Production of base oil components from organic material. The present invention relates to a base oil hydrocarbon composition comprising a total paraffin content of from 50 wt.% to 65 wt.%, of which at least 90 % are isomerised paraffins, a naphthenes content of from 25 wt.% to 35 wt.%, aromatics in an amount of 4 wt.% to 16 wt.% based on total weight of composition, and wherein the composition has a pour point of -26 °C to -32 °C and a kinematic viscosity 100 °C of 7 to 17 cSt. Particularly the base oil hydrocarbon composition is obtained from a feedstock comprising organic material of biological origin, such as crude tall oil. The present invention also relates to a process for producing base oil hydrocarbon product from a feedstock comprising organic material of biological origin.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023116168 A1 20230629	Petrochina Co Ltd (CN)	Method for preparing liquid fuel by means of selective catalytic deoxidation of grease, and liquid fuel. A method for preparing a liquid fuel by means of the selective catalytic deoxidation of grease, and a liquid fuel. The method comprises: S1, converting grease into a fatty acid methyl ester by means of methyl esterification; S2, converting the fatty acid methyl ester into a fatty alcohol by means of catalytic hydrogenation; S3, converting the fatty alcohol into a long-chain hydrocarbon by means of intramolecular dehydration; and S4: isomerizing the long-chain hydrocarbon to obtain a liquid fuel. The method for preparing a liquid fuel by means of the selective catalytic deoxidation of grease has the advantages of the adaptability to raw materials being high, a technological process being simple, a catalyst being cheap and easily available, hydrogen consumption being able to be significantly reduced, the selectivity of the obtained fuel product being good, the yield of glycerol being able to be increased, etc.
CN 116333815 A 20230627	Qingdao Inst Bioenergy & Bioprocess Tech, CAS et al. (CN)	Hydrotreatment method for catalyzing biomass grease. The invention is applicable to the technical field of sustainable energy utilization, and provides a hydrotreating method for catalyzing biomass grease, which comprises the following steps: mixing 100-5000ppm of a liquid catalyst of a complex metal matrix with biomass grease, feeding the mixture into a hydrogenation reactor, and carrying out hydrogen treatment under a full-backmixing high-temperature hydrogenation condition with the hydrogen pressure of 1-15MPa, a hydrogenation purification upgrading product is obtained. The invention develops a process-friendly liquid hydrogenation catalyst, and the liquid hydrogenation catalyst has the advantages of strong raw material adaptability, uniform mixing, high hydrogenation activity, small catalyst dosage, low equipment loss and the like; the adopted metal is a complex metal matrix, and compared with reduction state transition metal and precious metal, the cost is low, and the impurity tolerance is higher.
WO 2023156742 A1 20230824	Totalenergies Onetech (FR)	Method for producing a stabilised biomass oil. The invention relates to a method for producing a stabilised biomass oil, comprising: (a) providing a biomass oil chosen from a biomass pyrolysis oil, a biomass hydrothermal liquefaction oil and mixtures thereof, and an unsupported hydrotreating catalyst or a precursor of an unsupported hydrotreating catalyst, (b) hydrotreating the biomass oil provided in step a) in the presence of dihydrogen and the unsupported hydrotreating catalyst or its precursor provided in step (a) at a temperature less than or equal to 250°C and obtaining an effluent containing biomass oil that is at least partially hydrogenated, thereby forming a stabilised biomass oil and the unsupported hydrotreating catalyst. The resulting stabilised biomass oil can be used as is or separated into streams that can be used for the preparation of fuels and combustibles and/or for the preparation of lubricants, or in a hydroconversion or cracking process, especially for the manufacture of fuels.
US 2023257322 A1 20230817	Univ George Washington (US)	Conversion of alcohols and aldehydes to energy-dense hydrocarbon fuel mixtures. The present disclosure relates to a process for preparing long-chain alkanes and alkenes from alcohols, aldehydes, or both. The process proceeds via acceptorless dehydrogenation and decarbonylative coupling using a supported catalyst.
MY 197881 A 20230723	Univ Malaysia Sarawak (MY)	Microwave pyrolytic oil from the bark of sago tree. The present invention relates to a method of producing a microwave pyrolytic oil. More particularly, the present invention relates to a method of preparing an esterified pyrolytic oil (201), characterized in that, the method comprises of subjecting a biomass to a pyrolysis through microwave irradiation (100) in a microwave chamber (101) to obtain a pyrolytic oil (102), wherein the microwave chamber (101) is set at a power between 700 ? 1000 W and a frequency of 2450 MHz in a stream of an inert gas (103) and depleted oxygen; and subjecting the pyrolytic oil (102) obtained from the pyrolysis to an esterification (200), wherein the esterification includes a step of reacting the pyrolytic oil (102) with ethanol in the presence of an acid as a catalyst.
CN 116656421 A 20230829	-	Method for producing bio-oil by pyrolysis of biomass. The invention relates to the technical field of biomass resource utilization, specifically a method for producing bio-oil by pyrolysis of biomass. The biomass raw materials are impregnated with a potassium phosphate solution and then mixed evenly with a catalyst, and heated to 500-580°C with catalytic heat. The catalyst includes metal oxides. The bio-oil prepared by the method of the present invention has lower viscosity, less acid products and higher calorific value, and can be used as a potential liquid fuel.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 116515561 A 20230801	-	Method for producing second-generation biodiesel with a liquid catalyst. The invention relates to a method for producing second-generation biodiesel with a liquid catalyst. The method uses a liquid catalyst containing transition metal molybdenum, and changes the original fixed bed reactor into a fixed bed + suspended bed under hydrogenation conditions, and converts biomass raw materials into Converted to second generation biodiesel. Compared with the original hydrogenation process, the fixed bed + suspended bed hydrogenation process can significantly improve the activity and service time of the solid particle catalyst, effectively avoiding the problem of easy damage and deactivation of the solid particle catalyst; the self-built liquid catalyst system device, Uniform mixing, simple operation, precise control, and the ability to accurately control the amount of liquid catalyst added. This method is suitable for the hydrotreating of vegetable oils and/or animal fats and other renewable biomass oils. It has the characteristics of high catalytic efficiency, long operation cycle, and easy treatment of waste residues. It is especially suitable for the large-scale promotion of second-generation biodiesel.
CN 116396785 A 20230707	-	Special fuel suitable for intensified compression ignition engine. The invention belongs to the field of petrochemical engineering, and particularly provides a special fuel suitable for an intensified compression ignition engine, and the special fuel comprises coal diesel oil, tripropylene glycol monomethyl ether, an anti-wear agent, an antioxidant and a metal corrosion inhibitor. Compared with traditional vehicle diesel oil, the special fuel has a higher cetane number, better lubricity and higher oxygen content; the dynamic property can still be improved under the condition that the maximum throttle opening degree of the engine is strengthened, and meanwhile it is guaranteed that the engine does not knock under the large load; better lubricity can reduce abrasion and blockage of precise parts such as a needle valve matching part and an oil nozzle of an oil injector of a diesel engine, and the operation stability of an engine is improved. Meanwhile, the fuel does not contain a cetane number improver, so that the defects that the cetane number improver is decomposed, the fuel acidity is increased to corrode metal parts and the like when the special fuel is under poor airtight and shading conditions are overcome.

PATENTES BIOPRODUCTOS

Biomateriales (de construcción, medicina, embalaje, etc.)		
Biocomposites y biofibras		
Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023117648 A1 20230629	Basf SE (DE)	Process of producing a lignocellulosic composite or a product thereof using dielectric heating. Described is a process of producing a lignocellulosic composite or a product thereof, wherein the process comprises at least the steps of making a formed sheet by preparing a mixture comprising lignocellulosic particle and a heat-curable binder composition comprising as components for hardening the binder via reaction with each other at least one, two or more carbohydrate compounds and one or two compounds having two or more amino groups, comprising hexamethylenediamine and/or polylysine, and forming a sheet from said mixture, so that the formed sheet results, and of at least temporarily simultaneously compacting and dielectrically heating the formed sheet in a dielectric heating and pressing unit, so that the heat-curable binder composition hardens and the lignocellulosic composite results. Furthermore described is a lignocellulosic composite, which is preparable according to that process, a construction product comprising such lignocellulosic composite and the use of such lignocellulosic composite as a building element in a construction product.
WO 2023137163 A1 20230720	Celanese Int Corp (US)	Process and system for blending a plasticizer with a polysaccharide ester polymer. A process is disclosed for combining a polysaccharide ester polymer with one or more plasticizers in a way that produces a homogeneous blend. The polysaccharide ester polymer can be in the form of particles and fed to a heated extruding device. Separate quantities of plasticizer can then be combined with the polysaccharide ester polymer particles as they are conveyed through the extruding device. Through the process of the present disclosure, a homogenous blended product can be formed that can then be used to form various articles including fibers, films, and molded articles.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023162433 A1 20230831	Daio Seishi KK (JP)	Fibrous cellulose, fibrous cellulose composite resin, and method for producing fibrous cellulose. [Problem] To provide fibrous cellulose having a high resin reinforcing effect, a high-strength fibrous cellulose composite resin, and a method for producing fibrous cellulose having a high resin reinforcing effect. [Solution] This fibrous cellulose has an average fiber width of 0.1-20 µm, wherein part or all of hydroxy groups are substituted by carbamate groups, the rate of substitution by carbamate groups is 0.5 mmol/g or more, and fine ratio A/fine ratio B is 1.5-10. This fibrous cellulose composite resin contains said fibrous cellulose and a resin. In production of the fibrous cellulose, a disc refiner is used for miniaturization, and the initial load factor of the disc refiner is set to 65% or more.
WO 2023118666 A1 20230629	Fortum OYJ (FI)	A composite product and uses thereof. According to an example aspect of the present invention, there is provided a composite product comprising: a thermoplastic polymeric material; an organic fibrous material; and a flame retardant, wherein the composite product is capable of being melt processed, for example by injection moulding or by extrusion, in a temperature below 250°C.
WO 2023153735 A1 20230817	Hanwha Advanced Mat Corp (KR)	Composite material comprising biodegradable polymer, method for manufacturing same, and meltblown nonwoven fabric comprising same composite material. The present invention relates to a composite material comprising: a biodegradable polymer resin; a cellulose fiber; a viscosity modifier; and an acidic catalyst, wherein the cellulose fiber includes a biodegradable polymer that is a surface-modified cellulose fiber. As the composite material comprises a resin having excellent melt flow characteristics, the composite material can be manufactured into a fine fiber and can thus be manufactured into a meltblown nonwoven fabric. As the manufactured meltblown nonwoven fabric has excellent mechanical properties and web uniformity, the meltblown nonwoven fabric may exhibit stable barrier properties when used as a filter and the like.
EP 4245491 A1 20230920	Papershell AB (SE)	Method for manufacturing a composite article. The present invention relates to a method for manufacturing a composite article. The method comprises the steps of providing at least one sheet comprising a composite material, wherein the composite material comprises cellulosic fibers and a composite agent selected from the group of: thermoset resins, reactive thermoplastic resins, cellulose, hemicellulose, nanocellulose, lignin, bio-based polymers, substituted and non substituted furan, polyfurfuryl alcohol, and combinations thereof, applying a liquid to at least one of the at least two sheets, wherein the liquid forms a liquid pattern on the at least one sheet, arranging the at least two sheets on top of each other to form a stack of sheets, and pressing the stack of sheets in a pressing tool to form the composite article, wherein parts of the at least one sheet being applied with liquid becomes lighter than parts not being applied with liquid, such that the liquid pattern forms an integrated image shaped as the liquid pattern in the formed composite article.
WO 2023115127 A1 20230629	Protactinium PTY LTD (AU)	Biodegradable disposable articles. The present invention relates to a biodegradable disposable article comprising: unmodified and naturally occurring food waste comprising cellulose or hemicellulose in the range of about 5wt% to about 70wt%, less than about 80wt% carbohydrate and at least about 2wt% of lignin; wherein the food waste is optionally dehydrated and/or optionally agitated to form particulate solid material before being moulded under pressure of at least 5000 kg/cm ² and at a temperature of at least 150°C.
WO 2023161564 A1 20230831	Spinnova OYJ (FI)	Composite and structure, methods for manufacturing the same and uses thereof. Described herein is composite structure comprising microfibrillated cellulose (MFC) monofilament permeated by a hydrophobic resin. Also described herein are a structure and methods of manufacturing the composite material and structure and the uses thereof.
WO 2023118811 A1 20230629	UEA Enterprises LTD (GB)	A method of modifying cellulose fibres and/or cellulose fabric. A method of modifying one or more cellulose fibres and/or cellulosic fabric, wherein the method comprises: (a) providing an aqueous solution comprising at least one hydrocarbon acid and at least one acid catalyst and/or at least one emulsifier; (b) treating one or more cellulose fibres and/or cellulosic fabric with the aqueous solution provided in step (a) to couple the one or more cellulose fibers and/or cellulosic fabric with the at least one hydrocarbon acid.
WO 2023119292 A1 20230629	Yeda Res & Dev (IL)	Biodegradable composites. Provided herein a biodegradable composite comprising a biodegradable polymer and bio-crystals, wherein the bio-crystals are in a concentration of between lwt% to 50wt% of the biodegradable polymer.

Bioplásticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023142919 A1 20230803	China Petroleum & Chem Corp et al. (CN)	<p>Polylactic acid graft copolymer, and preparation method therefor and use thereof. The present invention belongs to the technical field of polymer synthesis, and particularly relates to a polylactic acid graft copolymer, and a preparation method therefor and the use thereof. The polylactic acid graft copolymer is characterized in that the polylactic acid graft copolymer contains a repeating structural unit of a structure as shown in formula (A), wherein R1 is H or a grafting group, and at least part of the R1 in the repeating structural unit is a grafting group. In addition, the right-angle tearing strength of the polylactic acid graft copolymer is not less than 120 kN/m, and preferably 135-150 kN/m; and the elongation at break is not less than 30%, and preferably 35-45%. The grafting efficiency of the polylactic acid graft copolymer prepared by adopting the method disclosed in the technical solution of the present invention is greatly improved; the toughness, elongation at break and glass transition temperature of a polylactic acid material are improved; and a prepared grafting-modified polylactic acid copolymerization material can be green and fully biodegradable.</p>
WO 2023167547 A1 20230907	CJ Cheiljedang Corp (KR)	<p>Polylactic acid resin vaporization promoter and composition containing same. An embodiment of the present invention pertains to: a composition which contains at least 10 wt% and less than 100 wt% of a polylactic acid (PLA) resin on the basis of the total weight of the composition and has a degree of vaporization (V10w) of 50% or more as obtained by measuring the cumulative amount of carbon dioxide (CO2) generated after 10 weeks at 30°C; and a polylactic acid (PLA) resin vaporization promoter for promoting the vaporization of the polylactic acid (PLA) resin. The polylactic acid (PLA) resin vaporization promoter can significantly accelerate the vaporization of a polylactic acid (PLA) resin having a low degree of vaporization at a room temperature of 30°C, and thereby improve the biodegradation of the polylactic acid (PLA). Thus, the composition containing the polylactic acid (PLA) resin vaporization promoter can be used in various fields and exhibit excellent physical properties while effectively preserving the environment.</p>
WO 2023168211 A1 20230907	Dialight Corp (US)	<p>Polymeric materials for use with high power industrial luminaires. The present disclosure is directed to examples of housing for a luminaire. In one example, the housing includes a bioplastic base formed to receive a light emitting diode and a driver and a lens coupled to the bioplastic base. The bioplastic base may include a bioplastic and is formed with a non-biodegradable or a biodegradable plastic.</p>
WO 2023120193 A1 20230629	Kaneka Corp (JP)	<p>Method for producing polyhydroxyalkanoate and use of same. The purpose of the present invention is to provide a method for producing PHA which enables efficient filtering. The above problem is solved by providing a method for producing PHA, said method comprising a step for using a filtering material having an airflow rate of 0.01-5.0 cc/cm2/sec to perform dead-end filtration of an aqueous PHA suspension having a pH of 2.5-5.5, wherein the amount of PHA-surface-adhering protein in the aqueous PHA suspension is not more than 2,000 ppm, and the liquid density of the aqueous PHA suspension in the filtration step is 0.50-1.08 g/mL.</p>
WO 2023137103 A1 20230720	Meredian Inc (US)	<p>Polyhydroxyalkanoate (PHA) cake. A cake material is disclosed, made up of polyhydroxyalkanoate (PHA) cake that is formed directly from biomass and subsequent purification processes absent any heated drying step, with a moisture content of no less than about 5% by weight, and a Dv (90) particle size of no more than about 8 microns.</p>
WO 2023174899 A1 20230921	Nestle SA et al. (CH)	<p>A method for producing a compound comprising a polyhydroxyalkanoate and cellulose. Process for manufacturing a biodegradable compound, said process comprising the steps of, in order: • (i) providing an extruder with at least one rotating screw, at least two feeding units suitable for being fed with ingredients, and an extruder die, • (ii) feeding the first feeding unit with a PHA polymer and maleic anhydride (MA), • (iii) feeding the second feeding unit with cellulosic fibres, • (iv) rotating the screw to mix the PHA and maleic anhydride ingredients and graft said maleic anhydride onto said PHA molecules to form PHA grafted with MA ("PHA-g-MA") in an amount of 1 to 10%, preferably 1 to 3% of the total content of PHA, and then mixing said PHA-g-MA with cellulosic fibres to form a molten compound of PHA-g-MA and cellulosic fibres, • (v) passing said molten compound through said extruder die and shaping said extruded compound into different compound formats.</p>

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023154926 A2 20230817	Newlight Tech Inc (UA)	Multiphased polyhydroxyalkanoate-based compositions and articles made therefrom. The present specification generally relates to a composition for the manufacture of bio-degradable, bio-compostable, ocean degradable, biocompatible articles that contain a bio-based thermoplastic component. In particular, it has been found, in accordance with the practice of this invention, that marked improvement in tensile strength, toughness and elongation of polyhydroxyalkanoate (PHA) can be achieved by dispersing in the PHA an amorphous PHA and then optionally coupling the dispersed amorphous PHA. The polyhydroxyalkanoate / amorphous polyhydroxyalkanoate blends of the present invention comprise from 70-97.5 percent by weight of the PHA, from 2.5 - 30 percent by weight of the amorphous PHA can be used to produce a wide array of articles.
WO 2023154457 A1 20230817	Novomer Inc (US)	Stabilizers for polyhydroxyalkanoates. A composition comprising a polyhydroxyalkanoate (PHA) and a stabilizer comprising one or more of an aliphatic carboxylic acid having a hydroxyl or thiol group, a cyclic anhydride, or a halo carboxylic acid may be formed by contacting the PHA and stabilizer and intermixing them so that the stabilizer is incorporated into the PHA to stabilize PHA. Typically, the PHA is melted, and the stabilizer added before much if any degradation (i.e., reduction of molecular weight occurs). The aliphatic carboxylic acid having a hydroxyl group may be naturally occurring and may be particularly useful for applications having human or food contact or particular environmental constraints.
WO 2023168442 A1 20230907	Transfoam LLC DBA Ourobio (US)	Methods for the coproduction of polyhydroxyalkanoates and indigoid derivatives from whey protein and lactose. Described herein are DNA constructs containing genes which enable co-production of polyhydroxyalkanoates and indigoid derivatives in bacteria transformed with those DNA constructs. The DNA constructs described herein comprise genes which express a flavindependent monooxygenase and polyhydroxyalkanoates, a class of biodegradable polyesters. The resulting product is a natural polyester dyed with indigoid dyes.
WO 2023133190 A2 20230713	Univ Brown (US)	Catalysts for polylactide preparation. A catalytic compound of formula I, II, or III is described; wherein M is selected from the group consisting of Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu; R1, N is an integer from 1 to 3; R2, R3, and R4 are independently selected from lower alkyl, lower alkoxy, C5-C8 aryl, and NR6 2, wherein R6 is -CH3 or -C2H5; and R5 is selected from -H, lower alkyl, lower alkoxy, and benzylic. Methods of using the compound to catalyze the formation of polylactides, and polylactides prepared using these methods are also described.

Bioproductos químicos (biofertilizantes, biocosméticos, biofarmacéuticos...)

Biofertilizantes, bioadhesivos, etc.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023156490 A1 20230824	Georg August Univ Goettingen Stiftung Oeffentlichen Rechts (DE)	Bio-based adhesive composition based on lignin. The present invention relates to an adhesive composition based on a lignin structure, wherein the lignin structure is a lignin functionalised by reaction with dimethylformamide and acrylic acid.
WO 2023178027 A1 20230921	Hollister Inc (US)	Smart adhesive materials for ostomy applications. A smart bio-adhesive material for application to a skin barrier of an ostomy appliance. The smart bio-adhesive material comprises a composition comprising a hydrogel material, acidic functional groups such as carboxylic acids N-Hydroxysuccinimide (NHS) ester. The hydrogel material being selected from a group of naturally derived polymers such as asgum karaya, polysaccharides, chitosan, alginates, casein, collagen, cellulose and or pectin The NHS ester is configurable for adherence to a skin surface by temporary crosslinking by a formation of covalent bonds between the ester and the skin surface. The bio-adhesive material is configured for triggerable detachment from the skin surface by exposure to a chemical trigger where the non-covalent and covalent bonds are cleaved upon exposure to the trigger.
WO 2023131676 A1 20230713	Indian Inst Tech Madras et al. (IN)	Bio-based adhesive for electrical insulation. The present invention is providing a bio-based adhesive composition which is water-based. The adhesive composition comprises bioprotein, salt of carboxymethyl cellulose, gum, alkali and a solvent. The adhesive composition is prepared at ambient conditions. The adhesive composition is useful for insulation of the electric material. Especially for pressboard for transformer which require good adhesive for imparting good mechanical and electrical strength.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023164507 A2 20230831	Kula Bio Inc (US)	Biofertilizer compositions and methods. The disclosure provides a growth medium and a culturing system for a nitrogen-fixing microorganism. The disclosure also provides methods of enhancing the accumulation of a microbial intracellular storage compound (MISC) in a nitrogen-fixing microorganism. The disclosure further provides biofertilizers comprising a nitrogen-fixing microorganism, as well as methods of improving and/or maintaining crop or plant yield, yield quality, or plant aesthetics, and/or improving soil health using the biofertilizers.
WO 2023147046 A1 20230803	Leaf Shave Company (US)	Adhesive for attaching objects to a surface. An adhesive for forming a water tight seal, including: a resin, being insoluble in water; a wax, being moldable and combined with the resin to form a combination, the wax combined with the resin to increase the ductility of the combination; and a binding agent, the binding agent being combined with the combination to increase the viscosity of the combination; where the resin, the wax, and binding agent are combined to form the adhesive.
WO 2023175548 A1 20230921	Materias SRL (IT)	Nitrogen-containing fertilizer and method for the production thereof. A method for producing a nitrogen-containing fertilizer is described, comprising (i) a step of cultivating one or more nitrogen-fixing cyanobacteria of the genus Anabaena, (ii) a step of separating the Anabaena cell biomass obtained in the cultivation step from the liquid culture medium, and (iii) a step of subjecting the cells of said biomass to mechanical disruption, preferably by sonication. The cultivation step is carried out in continuous mode in a closed photobioreactor, preferably in a flat-plate photobioreactor. The fertilizer that can be obtained by means of the method of the invention is also described, which is particularly effective in nourishing and promoting the growth of plants as well as improving the fertility of the cultivation soil.
WO 2023149727 A1 20230810	Pyo Sang Hyun (KR)	Novel betulin derivatives, and their manufacturing method and use as surfactant. Betulin is a natural pentacyclic triterpene, and is contained in birch tree, especially its outer bark. Betulin can be used as a hydrophobic building block for production of biobased surfactants. This invention is related to amphiphilic betulin derivatives, and their efficient production method. And resulting materials can be used as biobased surfactants.
WO 2023138900 A1 20230727	Roquette Freres (FR)	Use of smooth pea starch rich in polymorph b in adhesives for corrugated cardboard to decrease bonding time. Smooth pea starch is a legume starch that is very widely used in the preparation of adhesives for corrugated cardboard, in particular in granular form in the secondary portion of adhesives referred to as Stein-Hall adhesives. The industrial implementation of said adhesives requires them to have a bonding time that is well-controlled, reproducible and as short as possible in order to ensure a stable and maximised machine speed. According to the invention, the applicant proposes the use of a smooth pea starch that has a chosen amylose content and a chosen polymorph B content. Said choice makes it possible to control the rate of gelatinisation of the granular smooth pea starch, and thus increase the rate of gelatinisation to decrease bonding time.
WO 2023169757 A1 20230914	UHU GmbH & CO KG (DE)	Transparent adhesive composition. The invention relates to an adhesive composition containing at least the following components: a) starch and/or at least one starch derivative; b) at least one polyol and/or urea as a humectant; c) at least one polycarboxylic acid and/or a salt of a polycarboxylic acid and/or xanthan as a thickening agent; d) water.
WO 2023121441 A1 20230629	Univ Delft Tech et al (NL)	Adhesive from wet bacterial biomass. The present invention is in the field of a water-based adhesive, in particular an adhesive for adhering cellulose or cellulose fibres comprising materials and the like, such as paper, cardboard, a method for applying the water-based adhesive, typically by applying heat during a certain time, and a product obtained by said method.

Biocosméticos, Biofarmacéuticos		
Nº Publicación	Solicitante (País)	Contenido técnico
EP 4230187 A1 20230823	Biofactoria Naturae et Salus SA et al. (ES)	Single-dose cosmetic product and process of manufacturing thereof. The present invention relates to a single-dose cosmetic product and process of manufacturing thereof. The single-dose cosmetic product of the present invention comprises a solid portion of parenchyma of an aloe vera plant, a coating with waxy properties completely enclosing the solid portion and at least one tear tape located between the coating and the solid portion. The cosmetic product of the present invention allows a better handling and application of the aloe vera and also preserves the properties and stability of a 100% aloe vera product without the use of additives. The manufacturing process of this cosmetic product allows the properties of the aloe vera parenchyma to remain intact.
WO 2023122288 A2 20230629	C Combinator a Public Benefit Corp (US)	Methods for extracting alginate biomass and related compositions. The disclosure relates to methods for extracting an alginate biomass as well as related extract compositions. A biomass pulp is subjected to a multi-step or multi-stage extraction process including a first alkaline extraction followed by a second water or dilution extraction. The first extraction involves contacting the biomass pulp with a base such as a carbonic acid salt to form a biomass dough and convert alginate present in the biomass to a water-soluble alginate salt. The second extraction involves adding water to the biomass dough to form a biomass suspension, followed by partitioning and separation to form separate biosolids and bioliquids phases. Both extraction steps are performed at mild temperatures to preserve high-molecular weight polymer complexes including alginate and protein materials extracted from the biomass. The biosolids, bioliquids, and corresponding polymer complexes have favorable emulsifier properties, for example for use in cosmetic and other formulations.
EP 4241779 A1 20230913	Diana Food (FR)	Aronia extracts and uses thereof. The invention relates to 1) an aronia extract comprising proanthocyanidins (PACs) and anthocyanins, wherein the polyphenol content is at least 55 dry wt.%, the PACs content is at least 19 dry wt.%, and the PACs:anthocyanins ratio is at least 1.5; 2) a process for obtaining the aronia extract and the extract obtainable by said process; 3) a food, nutraceutical, or cosmetic composition comprising, or consisting of, said aronia extract and its use for preventing, limiting, or reducing the production of oxidative stress due to the exposure to pollutants, aging and/or exercise; 4) a pharmaceutical composition comprising said aronia extract and 5) such a pharmaceutical composition for use in the treatment of a disorder related to cellular oxidative stress in a subject in need thereof.
EP 4245288 A1 20230920	Gattefosse SAS (FR)	Use of a composition comprising stearyl glutamate as emulsifying base in a cosmetic or pharmaceutical formulation. Utilisation comme base émulsionnante dans une formulation cosmétique ou pharmaceutique, d'une composition comprenant un mélange de stéaroyl glutamate de métal alcalin et d'acide stéaroyl glutamique, caractérisée en ce que le tensio-actif présente un pH mesuré à 25°C à 5% dans une solution aqueuse entre 7,8 et 9,2 et en ce que la composition comprend entre 0,2 g et 0,5 g de phase aqueuse/g de tensio-actif. Procédé de fabrication de la base émulsionnante et composition cosmétique ou pharmaceutique la contenant.
EP 4241845 A1 20230913	Hartington Business SL (ES)	Silicone gel composition of walnut extract. The present invention provides a new silicone gel composition suitable for preparing an antiherpes viruses product of natural origin. The new composition is capable of permeating at the target epidermis side of the skin. The new composition is capable of retaining in the target epidermis side of the skin for a certain period. The present invention also relates to the topical use of the silicone gel composition for the treatment of viruses of the herpes family at a posology regime.
WO 2023118065 A1 20230629	Oreal (FR)	Cosmetic composition comprising a particulate cellulosic compound, hydrophobic silica aerogel particles, a semicrystalline polymer and a wax of plant origin. The present invention relates to a composition, especially cosmetic composition, in particular for caring for keratin materials, comprising: at least one particulate cellulosic compound; at least hydrophobic silica aerogel particles; at least one semicrystalline polymer containing at least one alkyl acrylate chain; and at least one wax of plant origin having a melting point of greater than 25°C. It also relates to a cosmetic process for caring for keratin materials comprising the application to the keratin materials of said composition.
WO 2023118529 A1 20230629	Oreal (FR)	Cosmetic composition comprising a polyhydroxyalkanoate copolymer bearing a(n) (un)saturated hydrocarbon-based chain and a natural resin. The present invention relates to a cosmetic composition comprising a) one or more polyhydroxyalkanoate (PHA) copolymers comprising at least two different repeating polymer units chosen from the units (A) and (B) below, and also the optical or geometrical isomers thereof, the organic or mineral acid or base salts thereof, and the solvates thereof such as hydrates: -[-O-CH(R1)-CH2-C(O)-]- unit (A); -[-O-CH(R2)-CH2-C(O)-]- unit (B) In which polymer units (A) and (B): • R1 and R2 are as defined in the description; b) one or more natural resins.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023139101 A1 20230727	Solmic Biotech GmbH (DE)	Mask for medical or cosmetic purposes containing micellized extracts. The invention relates to a (face) mask for medical or cosmetic purposes, which contains micellized extracts or micellized lipophilic active substances, in particular (face) mask that contains one or more solubilizates of lipophilic active substances on the basis of plant extracts, vegetable extracts, plant parts, phytotherapeutics, resins, vitamins, enzymes, proteins, algae, functional active substances and/or coenzymes, and mixtures and combinations thereof.
WO 2023117442 A1 20230629	Unilever IP Holdings BV et al. (NL)	Antiperspirant composition. The present invention relates to antiperspirant composition, particularly to antiperspirant composition having high levels of oil. The present inventors have found that when compositions having an unsaturated oil such as sunflower seed oil is present in the antiperspirant composition together with high total oil content present in the composition, the fabric which comes in contact with the composition in the axilla tends to get stained on repeated use. The present inventors have found that the problem of staining or yellowing of fabrics is significantly lowered when a combination of an alkoxyated aliphatic ether with an alkyl chain length of C3 to C10 and specific polyethylene glycol diester of fatty acid with chain length of C12 to C18 is used in an antiperspirant composition having high total oil content including unsaturated oil and an antiperspirant active.
WO 2023118448 A1 20230629	Virbac (FR)	Soft chew based on rice starch. The invention relates to a soft chew formulation comprising at least one nutraceutical ingredient and/or at least one pharmaceutical active substance; no more than 6 wt. % oil, fat or a mixture thereof based on the total weight of the soft chew; and starch. The Soft chew according to the invention comprises starch wherein at least 50 wt.% by weight of total starch weight present in the soft chew is provided by pregelatinized rice flour, and wherein the soft chew contains substantially no palatable agent of animal origin.

Bioaditivos alimentarios

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023122172 A1 20230629	Archer Daniels Midland Co (US)	Reduced sugar glucose syrup and fiber containing syrup. A sweetener syrup comprising at least 80% wt/wt dissolved solids of an indigestible maltodextrin with the remainder of the dissolved solids comprising saccharides and oligosaccharides and wherein a ratio of trisaccharides to monosaccharides plus disaccharides is at least 1.2 to 1. Excluding the indigestible maltodextrin, trisaccharides are the dominant saccharides in the syrup typically being 30%-42% and the combination of monosaccharides and disaccharides are less than 25%. Such syrups allow the preparation of food products, illustrated by food bars, that have less than 1 g sugar per 60 g serving size. Such food bars also have prolonged shelf life. Other food products exemplified are pudding and ketchup, that can have FDA nutrition label suitable for reduced sugar claims.
EP 4245148 A1 20230920	DSM IP Assets BV (NL)	Coffee beverage with rapeseed protein. The present invention relates to a coffee beverage comprising coffee and rapeseed protein, wherein the amount of rapeseed protein is between 0.1 and 10 wt. % of the coffee beverage.
EP 4226772 A1 20230816	Givaudan SA (CH)	Colouring composition. The present invention provides a food colouring composition, in particular the invention provides a composition or colouring composition comprising at least one phycobilin and at least one peptide, polypeptide and/or protein. In certain embodiments, the phycobilin (such as a Phycocyanin) and the at least one peptide, polypeptide and/or protein form a complex.
EP 4248763 A1 20230927	MI T Gastro Man GmbH (AT)	A food composition for the manufacture of a burrized herb crust. The invention relates to a food composition for the preparation of a herb crust au gratin comprising a base mixture and a flavour and/or taste mixture, wherein the base mixture comprises a food oil, breadcrumbs, hard cheese and a methyl cellulose solution.
WO 2023148312 A1 20230810	Nestle SA (CH)	Texturized fruit-like inclusion product. The invention relates to a method of making a texturized fruit-like inclusion product, said product comprising 50 to 80 wt% non-dietary fiber carbohydrate; and 5 to 20 wt% dietary fiber. The ratio of wt% dietary fiber to wt% non-dietary fiber carbohydrate is between 1 :10 to 1 :2, preferably between 1 :5 to 1.4. The invention further relates to a texturized fruit-like inclusion product, wherein said product comprises ingredients derived from different fruit sources. The use of a pectin methyl esterase source derived from a papaya plant to make a texturized fruit-like inclusion product is also described.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023144448 A1 20230803	Nordic Bioproducts Group OY (FI)	Low viscosity emulsions prepared from microcrystalline cellulose. The present invention relates to a method for producing a stable oil-in-water emulsion, by providing a mechanically fibrillated microcrystalline cellulose (fMCC) as an aqueous gel, at a pH of 4-7, and mixing it with a vegetable or animal oil into a cellulose-to-oil ratio of 1:1-1:20, and homogenizing the mixture at high pressure, thus providing stable emulsions lacking synthetic colloidal additives or chemicals. The invention also relates to the thus produced oil-in-water emulsions, suitable for use among others in fat- and oil-based foods.
WO 2023141596 A1 20230727	Premier Nutrition Company Llc (DE)	Sweetener composition and resultant beverage product. Described herein is a sweetener composition useful for improving the taste and mouthfeel of food and beverage composition as well as a ready to drink or ready to mix beverage composition, such as a protein shake comprising the sweetener composition.
WO 2023120382 A1 20230629	Suntory Holdings Ltd (JP)	Oral composition and soft capsule agent. A purpose of the present invention is to provide an oral composition comprising ergothioneine or a salt thereof and an oil and fat, the composition exhibiting separation resistance and being uniform. The present invention is an oral composition comprising ergothioneine or a salt thereof, an oil and fat, and an emulsifier having an HLB of 10 or less, wherein the emulsifier includes, in the constituent fatty acid, a polyhydric alcohol fatty acid ester containing a saturated fatty acid having 12 to 22 carbon atoms, and the amount of the oil and fat is 10% by weight or more.
WO 2023161814 A1 20230831	The Live Green Group Inc (US)	A plant-only bulking and texturing system for food products and methods of preparation thereof. A plant-only bulking and texturizing system for food products is provided. The bulking and texturing system is prepared by mixing one or more plant-derived category of ingredients such as a plant-derived source of fat, a fruit puree, a source of fiber and protein, a source of starch, a source of cream and one or more sugars and/or sugar replacements in a blender at 18000- 28000 RPM, at about 23°C to 30°C to obtain a first homogeneous mixture and pasteurizing the first homogeneous mixture by continuous mixing for about 15-30 minutes at a temperature of 68-75 degrees Celsius to obtain the plant-only bulking and texturing system for food products. The bulking and texturizing system may be incorporated individually or in combination in the system in a frozen food product (e.g., a plant-only ice cream) along with one or more other plant-derived ingredients or systems.
WO 2023118597 A1 20230629	The Protein Brewery BV (NL)	Composition comprising textured fungal protein pieces. The present invention relates to a composition comprising at least 60 wt.% of textured fungal protein (TFP) pieces containing, calculated by weight of dry matter: 25-70 wt.% of protein; 5-25 wt.% of fat; 20-45 wt.% of dietary fibre; 0.5-20 wt.% of anionic polysaccharide selected from alginate, pectin and combinations thereof; wherein at least 50 wt.% of the protein is fungal protein, wherein at least 25 wt.% of the dietary fibre is aminopolysaccharide selected from chitin, chitosan and combinations thereof; and wherein the anionic polysaccharide is ionically cross-linked by divalent metal cation selected from Ca ²⁺ , Mg ²⁺ and combinations thereof. The TFP pieces in the present composition comprise fungal biomass providing protein, dietary fibre and fat. They can suitably be applied in food products, not only as a valuable source of protein and dietary fibre, but also to provide a desirable 'chewy/fibrous' texture.

Bioproductos alimenticios para animales

Nº Publicación	Solicitante (País)	Contenido técnico
ES 2944593 A1 20230622	Arraez Bravo Fernando (ES)	Feed manufacturing process and product obtained. a) The invention consists of the mixture of a series of components such as garlic, solid polyphenols, garlic extract, salt, citric and/or tartaric acid, silica and/or sepiolites and/or cellulose, liquid polyphenols, garlic skin, clove and thyme, in pre-established proportions, which allow obtaining an ideal feed for feeding different breeds of animals. (Machine-translation by Google Translate, not legally binding).
EP 4223138 A1 20230809	Beichler Hanspeter (AT)	Food additive for animal food. The invention relates to a food additive for animal food, in particular a flavouring agent. According to the invention, it is provided that the food additive contains turmeric, in particular turmeric powder, and optionally cinnamon, in particular cinnamon powder. Further, the invention relates to a method for feeding an animal.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023176790 A1 20230921	Eneos Corp et al. (JP)	Composition containing alga belonging to class cyanidiophyceae. The present invention addresses the problem of providing a composition for farming an aquatic organism. The present invention provides: a composition for farming an aquatic organism, the composition containing an alga belonging to the class Cyanidiophyceae; or a method for farming an aquatic organism, the method including feeding the farming composition to the aquatic organism.
WO 2023161489 A1 20230831	Fermentationexperts AS (DK)	Feed comprising fermented soybean meal and seaweed and/or algae. The present invention relates to a feed product comprising at basic feed ingredient and a fermented composition, wherein the fermented composition comprising a fermented seaweed and/or algae, in combination with a fermented plant material, wherein the fermented plant material is selected from the family Fabaceae, the feed product comprises less than 25% (w/w) crude protein and more than 30% (w/w) cereal product.
WO 2023150832 A1 20230817	Futurefeed Pty Ltd (AU)	Novel compositions for reducing methane production in ruminant animals. The present invention relates to processes for preparing compositions comprising manufactured bromoform and a bromoform stabilising excipient suitable for reducing total gas production and/or methane production and/or improving growth performance in a ruminant animal.
WO 2023132820 A1 20230713	Gen Mills Inc (US)	Extruded food pieces having a rough textured surface and methods of making. The present disclosure relates to extruded protein products and methods for producing an extruded protein product. In particular, an extruded piece is disclosed having a high protein content that includes canola protein, and having a rough exterior appearance. Methods for making an extruded piece include processing, under extrusion conditions, a composition that includes a combination of a protein that includes canola protein, a structural ingredient, water, and an oil, and extruding through an extruder die assembly that exposes the composition to irregular flow prior to exiting the die assembly.
WO 2023154792 A1 20230817	Hills Pet Nutrition Inc (US)	Pet food compositions. Pet food compositions as well as method for alleviating pruritus, erythema, alopecia, or skin and ear secretion are disclosed herein. The pet food composition may comprise from about 1 to about 10 wt.% of quinoa; from about 1 to about 10 wt.% of amaranth; and from about 0.5 to about 8 wt.% of egg shell membrane, wherein all weight percentages are based on the total weight of the pet food composition on a dry matter basis.
WO 2023164127 A1 20230831	Mars Inc (US)	Pet food compositions and methods for modifying stool quality. Hydrolyzed keratin-containing materials, methods of preparing such materials, and compositions that include such materials are described. The method can include combining a keratin-containing material with an acid, processing the keratin-containing material by steam hydrolysis, and reducing a particle size of the keratin-containing material. The hydrolyzed keratin-containing material can include 1.0% by weight or less of lanthionine, relative to the total weight of the hydrolyzed keratin-containing material.
EP 4241572 A1 20230913	Phytobiotics Futterzusatzstoffe GmbH (DE)	Animal feed or animal feed additive with canadine and / or canadine derivative. The invention relates to animal feed, drinking water for animals or an animal feed additive containing canadine and/or a canadine derivative.
WO 2023137382 A1 20230720	Trope Hillel et al. (US)	Dog biscuit. A dog biscuit, such as a morning dog biscuit or an evening dog biscuit, that includes a botanical; a botanical seed or vegetable seed; a digestive enzyme or coenzyme; a probiotic or prebiotic; a vitamin; an animal organ; an egg yolk; a fruit or vegetable; and a bone broth.

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